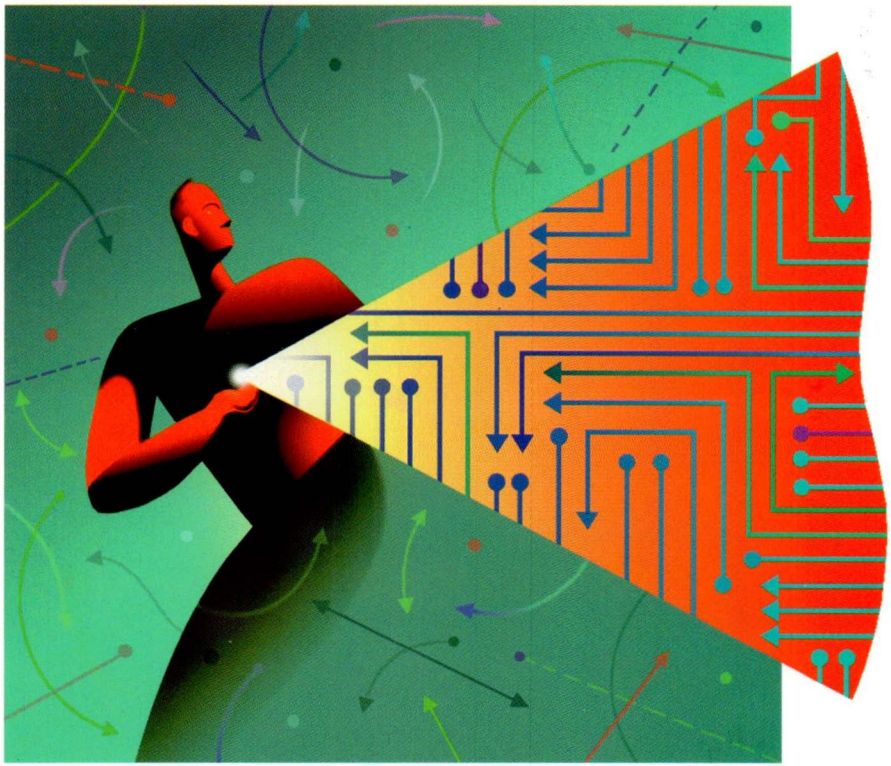
Meridian 1

MAT 5

User Guides



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User Guides

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Meridian Administration Tools

Common Services

User guide

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Introduction

Welcome to the Meridian Administration Tools release 5 (MAT) system. The MAT system provides the Meridian 1 system administrator with tools to maintain and update the Meridian 1 switch. The MAT system consists of MAT Common Services and several MAT applications, each of which provides specific system management capabilities.

This user guide describes the MAT Common Services. Separate user guides describe each MAT application.

> ***Note:*** Users of earlier versions of MAT should take the time to read this document, as MAT has undergone significant improvement.

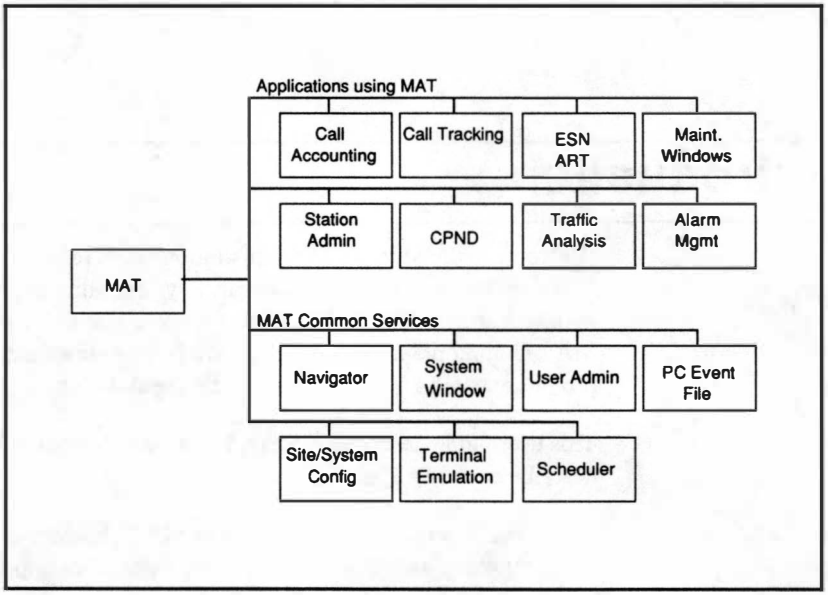
Overview

MAT Common Services provide for the following:

- installing MAT system common components and applications
- defining the MAT environment, including Meridian 1 sites and systems
- using the MAT scheduler
- using the system terminal
- using MAT communications services
- communicating between the MAT user and MAT applications

Figure 1 shows the components of the MAT system.

Figure 1
MAT system components



MAT users

MAT is designed for managers of telecommunications equipment and authorized Northern Telecom distributors. This guide is intended for users who have a working knowledge of Meridian 1 switches and general telecommunications concepts.

This guide assumes you are familiar with PC systems and the Microsoft Windows '95 environment. You should be familiar with the Windows environment before attempting to use the MAT system.

There are two levels of access to the MAT system:

- *Administrator* access allows unrestricted use of MAT and its functions. The system administrator configures the MAT system, sets up the connections to the Meridian 1, and defines user access to MAT application modules.
- *User* access allows read only, read/write, or no access to sites, systems, or applications, as defined by the MAT Administrator. The Administrator can create a broad range of access levels for various users.

Conventions used in this manual

This manual uses the following typographical conventions:

- Angle brackets denote a single keyboard key. For example, **<Esc>** denotes the Escape key, labeled **Esc** on PC keyboards. A series of angle brackets denote keyboard keys to use simultaneously.
- **This font** is used to designate information you are to enter, buttons you are to click, or menu selections you are to choose.
- Hot keys–Menu commands are available using both the mouse and the keyboard. Menu items show one letter as underlined. To choose an item with the keyboard, press the **<Alt>** key and the underlined key at the same time. For example, **<Alt>F** denotes the key sequence for opening the **File** menu.

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Installing MAT 5

This document describes how to install and prepare the MAT 5 system for operation.

Information on upgrading your current MAT 5 installation and installing from a network appear in "Upgrading Your License or Adding Applications" on page 149.

> *Note:* **This font** is used in this manual to designate information to enter, buttons to click, or menu selections to choose. For example, "Press **OK** to continue."

Overview

Installing your MAT 5 system involves the following tasks:

– If you plan to use Ethernet or PPP communications for the MAT network:

  - Draw up a network plan and hardware list. A network plan is a simplified drawing of the connections between the devices on the network. Use the completed plan to write a "shopping list" of hardware that you need to set up the network. Figure 2 on page 8 shows an example network plan.
  - Assign IP addresses for the Meridian 1 and the MAT PCs. If you plan to connect the MAT network to another network, your network administrator can provide IP addresses. If the MAT network will not connect to any other network, you can use the default IP addresses.
  - Using the hardware list in your network plan, collect all hardware–cables of the correct type, connectors, transceivers, network hubs, and so on.

- Prepare the PC
  - Backup data and applications using backup software
  - Perform a virus check on your hard disk
  - Install and configure the communications hardware:
    - Network Interface Card (NIC) (for ethernet communications)
    - Modem (for Point-to-point Protocol (PPP) communications and for serial communications)
  - Install Windows® 95 (if needed) and Microsoft™ TCP/IP
- Prepare the Meridian 1
  - Install the appropriate X11 release with the appropriate packages enabled
  - Use Overlay 117 to configure Ethernet and/or PPP communications (if needed)
  - Use Overlay 17 to configure and enable users for MAT 5
- Connect the network and/or serial communications cables
- Verify network and/or serial communications connections (Meridian 1-to-PC)
- Install the MAT 5 software at the PC
- Configure the MAT PC
- Verify MAT 5 operation at the PC
- Configure the MAT 5 database and set definitions of your sites and systems.

Getting Ready

This section describes the software and hardware required to run MAT 5, both for the PC and the Meridian 1. Collect these materials before you begin to insure a smooth installation.

For information on disk space requirements for the various MAT 5 components, see Appendix A.

For Ethernet Networks Only—Prepare a Network Plan

A network plan helps you to visualize the network layout and to prepare all required hardware for the installation. A well-prepared network plan will save you hours of frustration in installation. Be sure to complete the following items before proceeding with installation:

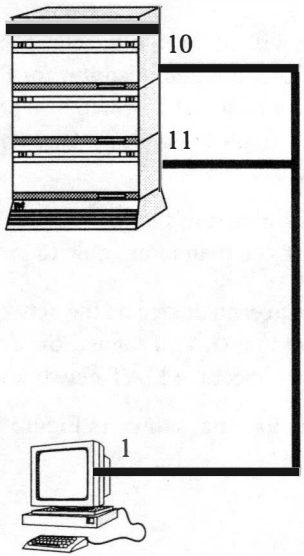
- If the MAT network will connect to the company's internal network by a gateway, ask the network administrator for IP addresses for the MAT devices. The network administrator will also provide access rights to the network drive, and will program the router with information on the MAT portion of the network.

  Note: NORTEL recommends that you use 10BaseT hardware if you use Meridian Mail, or if you plan to upgrade to projected future products.

- Assign an IP address to each device on the network (each IOP, MAT PC, gateway server, and so on). You can use the default IP address values if you do not plan to connect the MAT network to any other network.

- Draw a network plan like that shown in Figure 2.

Figure 2
Example Ethernet Network Plan



Example IP Addresses:

Meridian 1:
Active IOP: 47.1.1.10
Inactive IOP: 47.1.1.11

MAT PC: 47.1.1.1

Subnet Mask:
255.255.255.0

Example Hardware List:
2 Ethernet Transceivers
Cabling
Hub
NIC card for PC

Note: Unless otherwise specified, all IP addresses are for example purposes only.

PC Requirements

Refer to "MAT 5 PC Requirements" on page 131 for detailed PC requirements.

Recommended PC Configuration

An IBM PC™ or compatible (Intel Pentium™ 75 MHz (or faster) microprocessor) with:

- 32MB memory (see "Memory Requirements" on page 134).
- 3.5 inch, 1.44MB diskette drive
- 1 GB hard disk (500 MB free space recommended)
- Microsoft Windows 95 with Microsoft TCP/IP installed
- Network communications hardware, as follows:
  - Ethernet Network Interface card (NIC) if you plan to use Ethernet network communications
  - Ethernet transceiver (if required for the NIC) that match your cabling and network type
  - Hayes-compatible modem for serial or PPP communications
- Microsoft Dial-up Networking software if using PPP communications. (Provided with Window 95.)
- Serial port using 16550 UART technology
- Parallel printer port. A printer must be configured, even though it is not required to be physically attached to the PC.
- Hardware security dongle (provided by NORTEL)
- SVGA graphics monitor with interface card
- Windows-compatible mouse.

Meridian 1 Requirements

MAT 5 requires the following Meridian 1 system configuration:

- The appropriate X11 release, configured with the appropriate packages as specified in "X11 Releases Required for various MAT Applications" on page 139
- The appropriate X11 packages, as specified in "X11 Software Packages Required" on page 140
- 48MB of memory on the Meridian 1
- Upgrade IOP cards (Part number NT6D63BA) or IOP/CMDU cards (Part number (NT5D20BA). (Not applicable to Option 11C systems)
- One or two Ethernet AUI cables (Part number NT7D90DA). You will attach one cable to each IOP.

For Ethernet networks:

- Two (2) Ethernet transceivers (different types for 10BaseT and 10Base2 cabling). You will attach one transceiver to each AUI cable.
- Ethernet communications cable, as follows:

  — 10BaseT cabling requires Category 5 cable with RJ45 connectors

  Note: Although normal phone cable and Category 5 cable are similar in appearance, phone cable is not acceptable for network applications.

  — 10Base2 cabling requires RG58 cable with BNC connectors.

  Note: Although normal television video coaxial cable and RG58 cable are similar in appearance, video coaxial cable is not acceptable for network applications.

- If you are using the 10BaseT interface, an Ethernet hub is required.

WARNING

If you plan to connect your MAT network to another network, you must use an Ethernet gateway server. Connecting the network without a gateway will adversely affect your Meridian 1 system's call handling ability.

For PPP networks:

- Hayes-compatible modem
- modem cables

For serial communications:

- Hayes-compatible modem–defined as ADAN tty <SDI, SDI2, MSDI> card types. Attach the modem to the serial port on the card. Attach the phone cord (from the MAT PC) to the modem.
- modem cables

Preparing the PC

You will follow these steps to prepare your PC to run MAT:

- Backup data and applications (if needed)
- Install Windows 95 (if needed)
- Perform a virus check on your hard disk
- Install and configure the communications hardware:
  - Network Interface Card (NIC) (for ethernet communications)
  - Modem (for Point-to-point Protocol (PPP) communications)
  - Modem (for serial communications)
- Install the MAT 5 software
- Configure MAT communications

Install Windows 95

Follow the Microsoft documentation to install Windows 95.

Backup Data and Applications

Using backup software, backup any important data and applications.

Perform a Virus check

Using commercial anti-virus software, perform a virus check on your hard disk.

Install and Configure the Communications Hardware

This section discusses the steps involved in installing the communications equipment on the PC. This section is divided into the following three parts:

- Configuring PC Ethernet communications
- Configuring PC PPP communications
- Configuring PC serial communications

Please skip to the appropriate section for your installation.

Configuring PC Ethernet Communications

This section discusses the steps involved in installing the PC Ethernet communications equipment. Please skip this section if you plan to use only PPP or Serial communications between the MAT PC and the Meridian 1. Sections on PPP and Serial communications follow.

Follow these steps to configure Ethernet on the PC:

1 Install the Ethernet Network Interface Card (NIC) in the PC. Refer to the manufacturer's manual for detailed instructions. If your NIC does not autosense the physical interface type, you must configure the card to communicate to the correct physical Ethernet port (RJ45 connector for 10BaseT cabling, BNC connector for 10Base2 cabling, or AUI D-connector for use with a transceiver to either 10BaseT or 10Base2 cabling).

   If your NIC autosenses the interface type, you need not configure the interface to the physical connector

2 Install the NIC software drivers as specified in the manufacturer's manual.

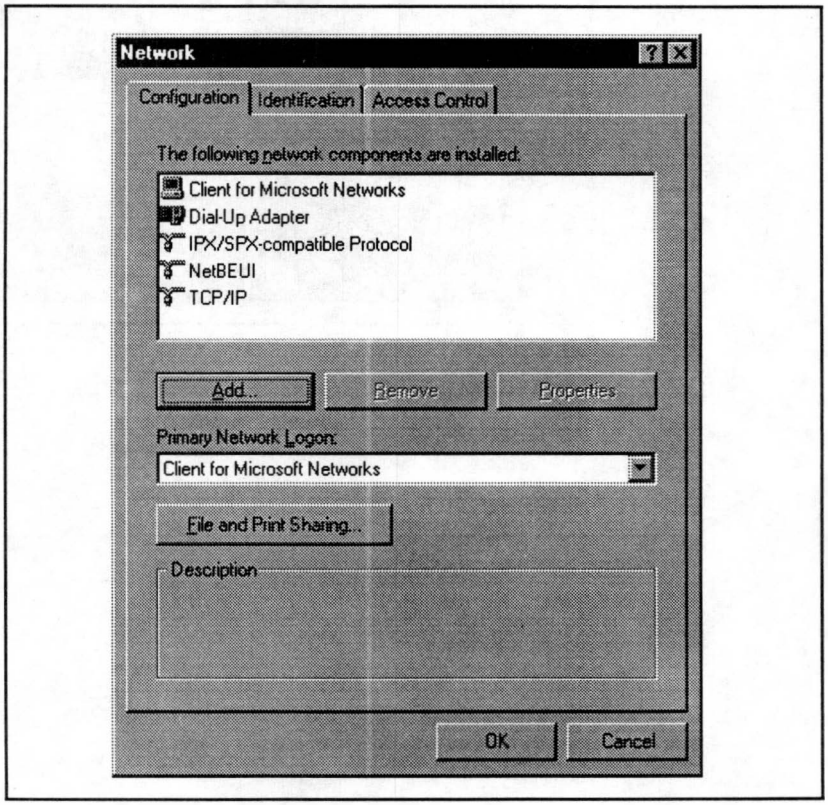
3 Start Windows 95.

Configure Ethernet communications at the PC as follows:

1 Launch the **Control Panel.**

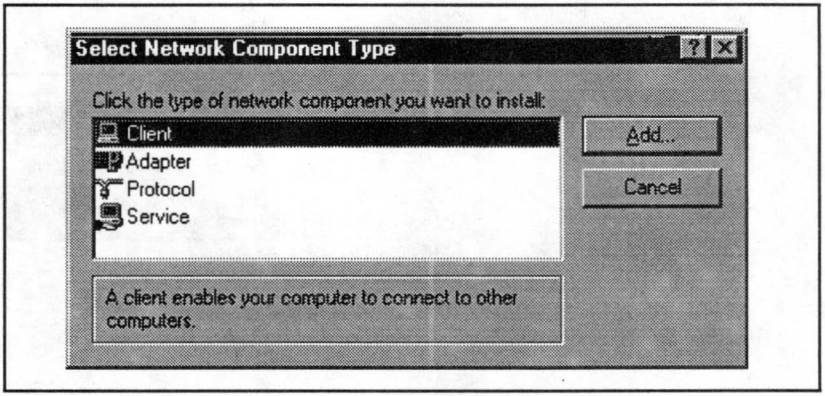
2 Open **Network.** The **Network** property sheet appears.

Figure 3
Network property sheet



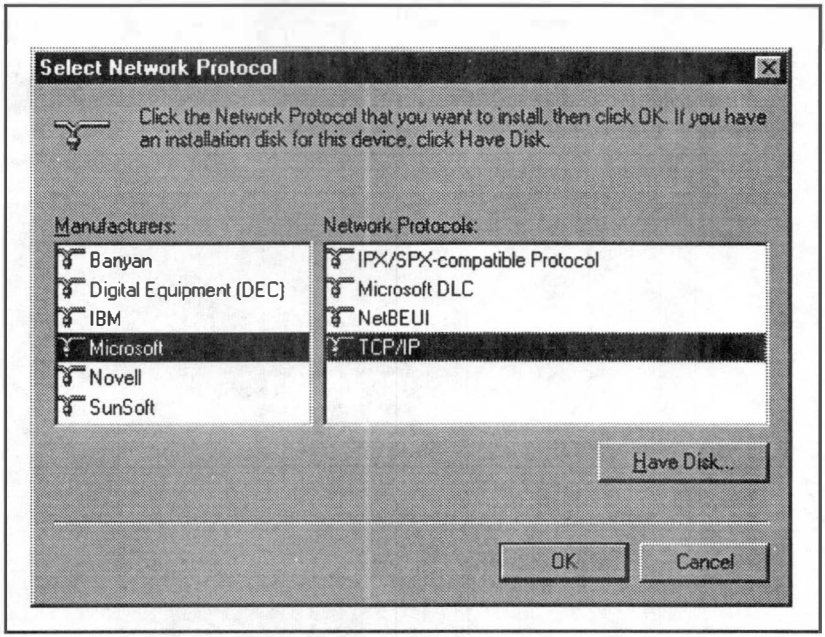
3 Click **Add.** The **Select Network Component Type** dialog box appears.

Figure 4
Select Network Component Type dialog box



4 Select **Protocol** and click **Add.** The **Select Network Protocol** dialog box appears.

Figure 5
Select Network Protocol dialog box



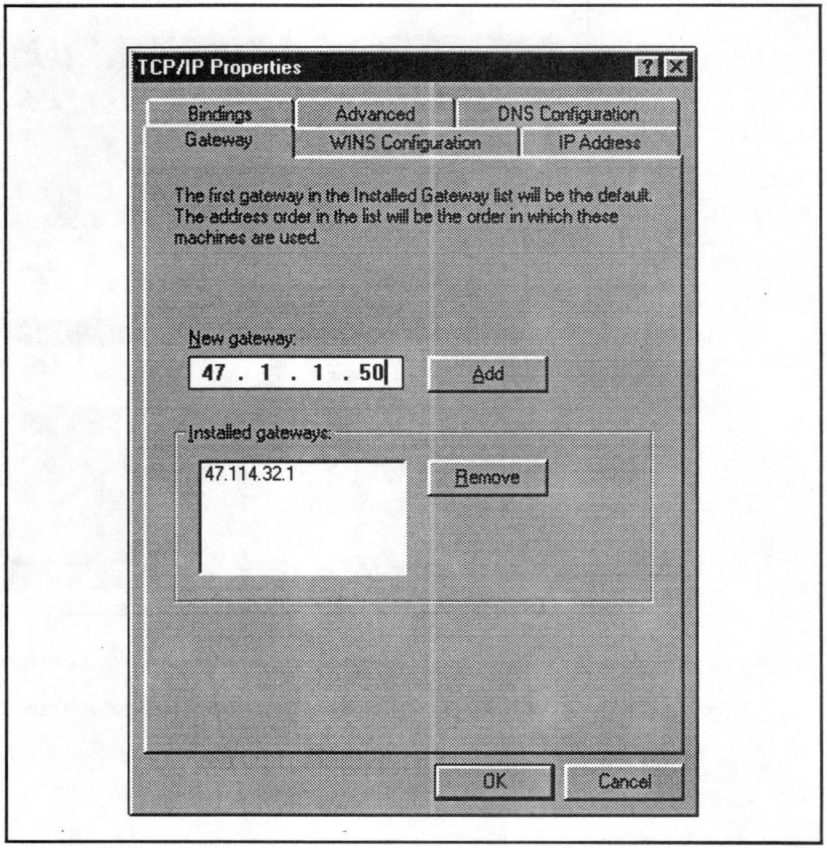
5 For Manufacturer, select **MICROSOFT.** For Network, select **TCP/IP.**

Click **OK.** The **Network** property sheet returns.

6 In the Network property sheet, select **TCP/IP** and click **Properties.**

The **TCP/IP** property sheet appears.

Figure 6
TCP/IP property sheet, Gateway tab



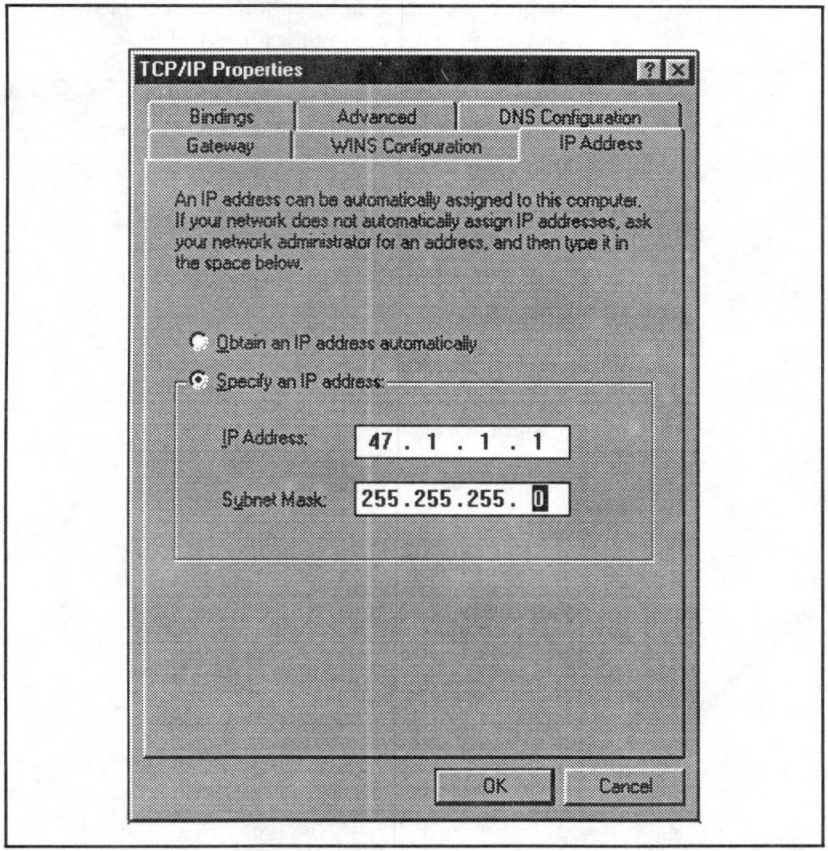
7 If your MAT network does not include a router, skip to Step 8. If your MAT network does include a router, click the **Gateway** tab.

Enter the gateway IP address that you obtained form the network administrator (47.1.1.50 in our example).

Click the **Add** button.

8 Click the **IP Address** tab.

Figure 7
TCP/IP property sheet, IP Address tab



Check the **Specify an IP Address** box.

Enter the IP address (47.1.1.1 in our example).

Enter the subnet mask (255.255.255.0 in our example).

Click **OK.** The **TCP/IP** property sheet returns.

Click **OK** in the **Network** property sheet.

9 Restart Windows 95.

Configuring PC PPP Communications

This section discusses the steps involved in installing the PC PPP communications equipment. Please skip this section if you plan to use only Ethernet or Serial communications between the MAT PC and the Meridian 1. A section on serial communications follows.

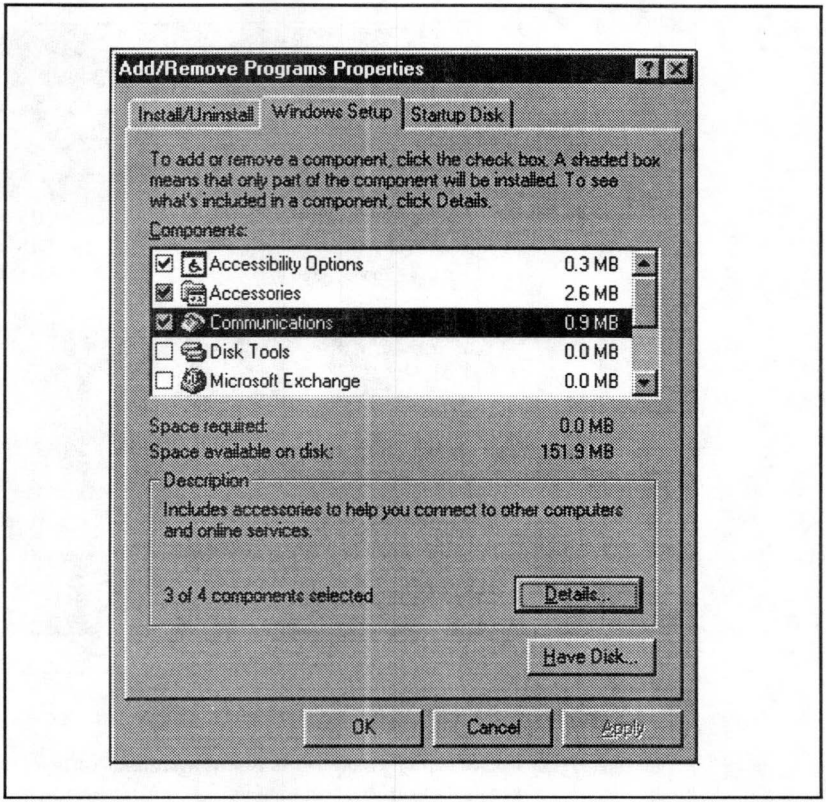
> ***Note:*** MAT must be installed after Dial-Up-Networking for Dial-Up-Networking to function correctly.

1. Start Windows 95.
2. Launch the Control Panel.
3. In the following steps, you will install Windows 95 Dial-Up-Networking.

4 In the Control Panel, launch **Add/Remove Programs**. The **Add/Remove Programs** property sheet appears.

Select the **Windows Setup** tab on the property sheet.

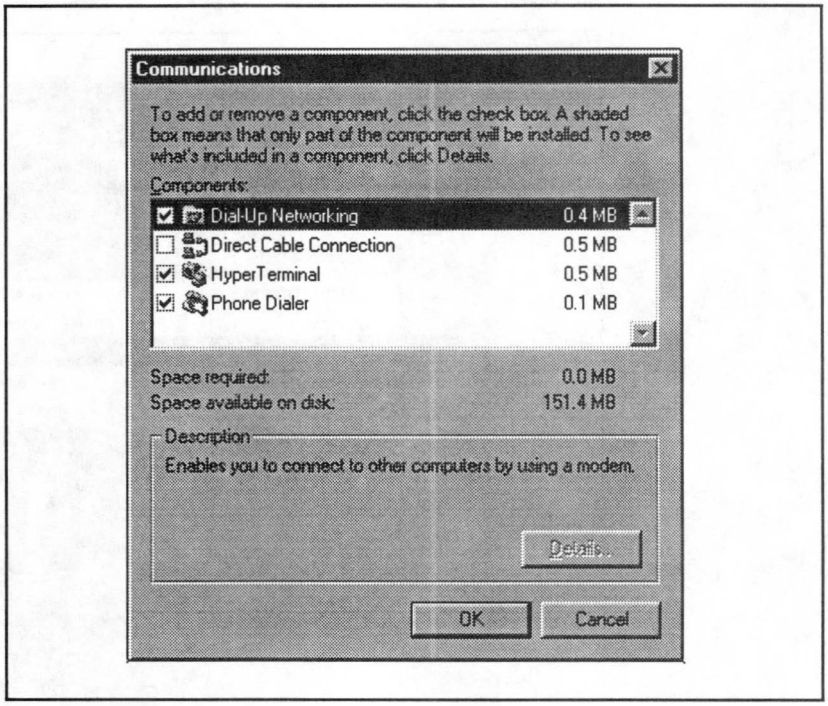
Figure 8
Add/Remove Programs property sheet, Windows Setup tab



5 Select **Communications** from the list of programs.

Click **Details** to bring up the detailed list of programs.

Figure 9
Add/Remove Programs property sheet, Windows Setup tab



6 Select **Dial-Up Networking** from the detailed list. Click **OK**.

7 If Dial-Up Networking is being installed for the first time, the system prompts you to configure your modem. Follow the on-screen steps, and skip to the next step.

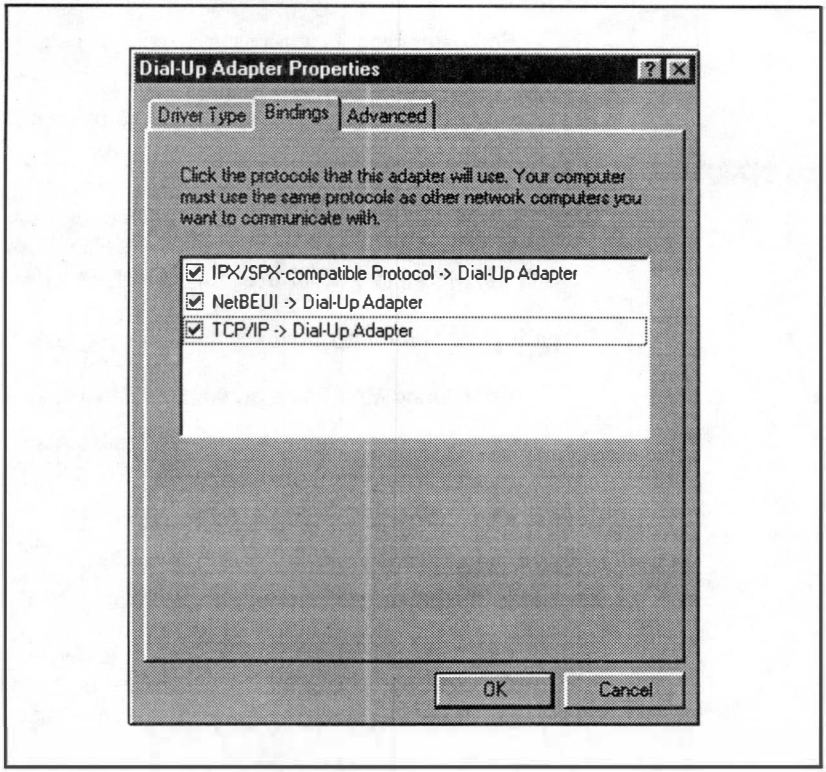
If you need to change your modem configuration or add one after Dial-Up Networking is already installed, you can do so from the Windows 95 Control Panel as follows:

— Open the control panel and double-click **Modems**. Choose **Add** to add a new modem and follow the steps presented for configuring your new modem.

8 In the Network property sheet, select Dial-Up Adapter and click **Properties.**

The Dial-Up Adapter property sheet appears.

Figure 10
Dial-Up Adapter property sheet



9 Click the **Bindings** tab.

Select **TCP/IP -> Dial-Up Adapter.**

Click **OK.** The **Network** property sheet returns.

Click **OK** in the **Network** property sheet.

10 Restart Windows 95.

Configuring PC Serial Communications

This section discusses the steps involved in installing the PC serial communications equipment. Please skip this section if you plan to use only PPP or Ethernet communications between the MAT PC and the Meridian 1.

Follow these steps to configure serial communications on the PC:

1 Follow the manufacturer's instructions to install your modem hardware and software.

2 Connect the modem to the Meridian 1 using phone cable.

Preparing the Meridian 1

This sections guides you through the preparation of the software and communications hardware on the Meridian 1. Communications between your PC and the Meridian 1 occur over Ethernet, PPP, or serial interfaces.

Preparing the Meridian 1 involves the following tasks:

1 Configuring MAT users on the Meridian 1

2 Connecting the communications components (cables and transceivers) between the Meridian 1 and the PC

Configuring MAT Users on the Meridian 1

This section steps you through Meridian 1 configuration. User input is shown in bold following the ">" prompt. For example,> **ld 17**.

1 Install the appropriate release of X11 software. See "X11 Releases Required for various MAT Applications" on page 139. X11 Release 22 is required for Ethernet and PPP communications.

2 Perform a sysload.

3 Configure LAPW. MAT communicates with the Meridian 1 through LAPW IDs and passwords configured on the Meridian 1.

>**logi (LAPW ID)**

PASS?> **(enter the level 1 or level 2 password)**

```
WARNING: THE PROGRAMS AND DATA STORED ON THIS SYSTEM
ARE LICENSED TO OR ARE THE PROPERTY OF NT/BNR AND ARE
LAWFULLY AVAILABLE ONLY TO AUTHORIZED USERS FOR
APPROVED PURPOSES. UNAUTHORIZED ACCESS TO ANY
PROGRAM OR DATA ON SYSTEM IS NOT PERMITTED. THIS
SYSTEM MAY BE MONITORED AT ANY TIME FOR OPERATIONAL
REASONS. THEREFORE, IF YOU ARE NOT AN AUTHORIZED
USER, DO NOT ATTEMPT TO LOGIN.

TTY #00 LOGGED IN 15:02   9/7/1996
```

The following section is only required if login names is not configured.

>**ld 17**

```
CFN000
MEM AVAIL: (U/P): 3352174    USED: 203153    TOT:
3555327
DISK RECS AVAIL: 2764
DCH  AVAIL:    15    USED:     1    TOT:    16
AML  AVAIL:    10    USED:     0    TOT:    10
REQ> chg
TYPE> pwd
PWD2 (your level 2 password)
LNAME_OPTION> yes

MEM AVAIL: (U/P): 3352174    USED: 203153    TOT:
3555327
DISK RECS AVAIL: 2764
DCH  AVAIL:    15    USED:     1    TOT:    16
AML  AVAIL:    10    USED:     0    TOT:    10
```

Note: At this point, your old passwords will work with either the newly assigned user IDs or with the default user ID values associated with your old passwords. See the online help for LD17, LNAME_OPTION for more information. Please alert others of any changes; for example, all technicians with access to the Meridian 1, the Distributor, and so on.

Continue configuring LAPW and MAT:

```
DEFAULT LOGIN NAMES SAVED

REQ> chg
TYPE> pwd
PWD2
LNAME_OPTION> yes
NPW1
LOGIN_NAME
NPW2
LOGIN_NAME
LOUT
LAPW> 88 (example)
PW88
LOGIN_NAME> johns
OVLA> all
OVLA
CUST> all
CUST
HOST
MAT> yes
MAT_READ_ONLY> no
OPT
LAPW
FLTH
LOCK
FLTA
AUDT
LLID
INIT

MEM AVAIL: (U/P): 3352149    USED: 203178    TOT:
3555327
DISK RECS AVAIL: 2764
DCH  AVAIL:    15    USED:     1    TOT:    16
AML  AVAIL:    10    USED:     0    TOT:    10
REQ> end
```

4 If you are using serial connections, skip this step.

If you are using Ethernet or PPP connections, configure a PTY for each MAT application that will run over Ethernet or PPP simultaneously. For example, Maintenance Windows and System Terminal each require a PTY if they run at the same time. If you have enough free ports, NORTEL recommends that you configure at least two PTYs. You can allocate a maximum of 8 PTYs (maximum of 4 PTYs on an Option 11C).

Find an empty tty slot:

```
>ld 22
PT2000

REQ> prt
TYPE> adan tty

ADAN     TTY 0
  CTYP PTY
  DNUM 0
  PORT 0
  DES  pty0
  FLOW NO
  USER SCH
  XSM  NO
  TTYLOG       0
PORT 7
  DES  jonspty
  FLOW NO
  USER MTC SCH BUG
  XSM  NO
  TTYLOG       0
  BANR YES
ADAN     TTY 8
  CTYP SDI2
  DNUM 8
  DES  TECHSUN
  FLOW NO
  USER MTC SCH CTY BUG
  XSM  NO
  TTYLOG       0
  BANR YES
```

```
...
REQ> ****
OVL000
>ld 17
CFN000
MEM AVAIL: (U/P): 3352149    USED: 203178    TOT:
3555327
DISK RECS AVAIL: 2764
DCH  AVAIL:    15    USED:     1    TOT:    16
AML  AVAIL:    10    USED:     0    TOT:    10
```

Note any empty port 0-15. Choose a PTY number 0-7. In this example, we find TTY 13 to be free, and assign PTY 0.

```
REQ> chg
TYPE> adan
ADAN> new tty 13
CTYP> pty
PORT> 0
DNUM> 13
DES> new pty
FLOW
USER> mtc bug sch
TTYLOG
BANR

MEM AVAIL: (U/P): 3345946    USED: 209381    TOT:
3555327
DISK RECS AVAIL: 2764
DCH  AVAIL:    15    USED:     1    TOT:    16
AML  AVAIL:    10    USED:     0    TOT:    10

ADAN DATA SAVED
ADAN> end
```

Configuring Ethernet and PPP at the Meridian 1

If you are using Ethernet, follow these steps to configure users for MAT 5. If you are not using Ethernet, please see the following sections on PPP and Serial.

1 Configure Ethernet at the Meridian 1.

```
>LD117
>NEW HOST M1SRVR01 47.1.1.10
>CHG ELNK ACTIVE M1SRVR01
>CHG MASK 255.255.255.0
```

Repeat the process if you use a backup (inactive) IOP.

```
>LD117
>NEW HOST M1SRVR02 47.1.1.11
>CHG ELNK INACTIVE M1SRVR02
>CHG MASK 255.255.255.0
```

Note: To see the new entries, type **PRT ELNK**

2 If you have a default gateway in the network, define the routing table. The routing table provides the Meridian 1 with the IP address of the gateway server so that the Meridian 1 can send return messages to the gateway for forwarding to the requesting client.

```
>LD117
NEW ROUTE 0.0.0.0 47.1.1.250
```

3 If you are using PPP, follow this procedure to configure the local and remote PPP IP addresses.

```
>LD 117
NEW HOST PPPLOCAL 47.0.0.2
CHG PPP LOCAL PPPLOCAL 1
```

```
>LD 117
NEW HOST PPPREMOTE 47.0.0.3
CHG PPP REMOTE PPPREMOTE 1
```

4 **>LD 43-EDD**

5 Perform an init.

Installing the Ethernet Connections on the Meridian 1

This section outlines the physical connections required for Ethernet communications.

See Figure 2 and Figure 2 for the details of cabling connections.

Figure 11
Cabling Detail, Example 10BaseT Installation

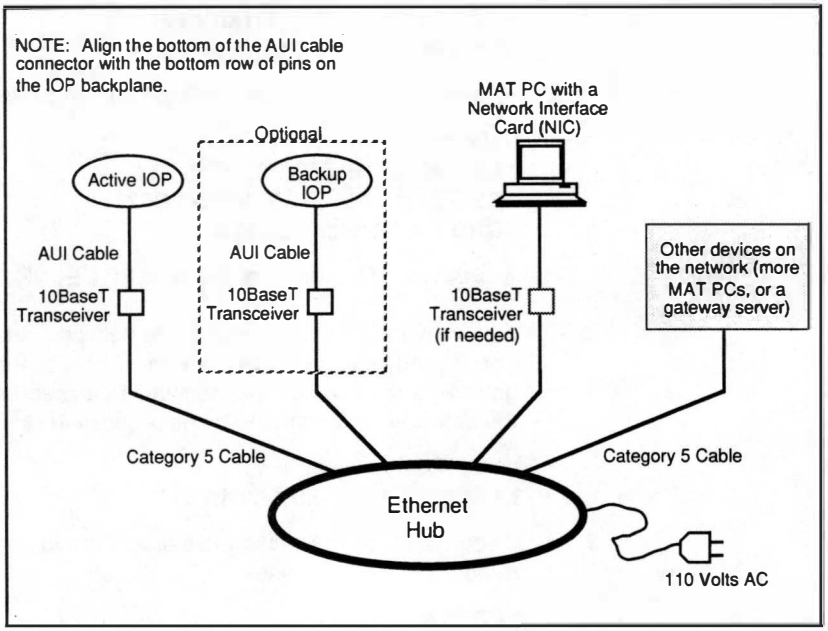
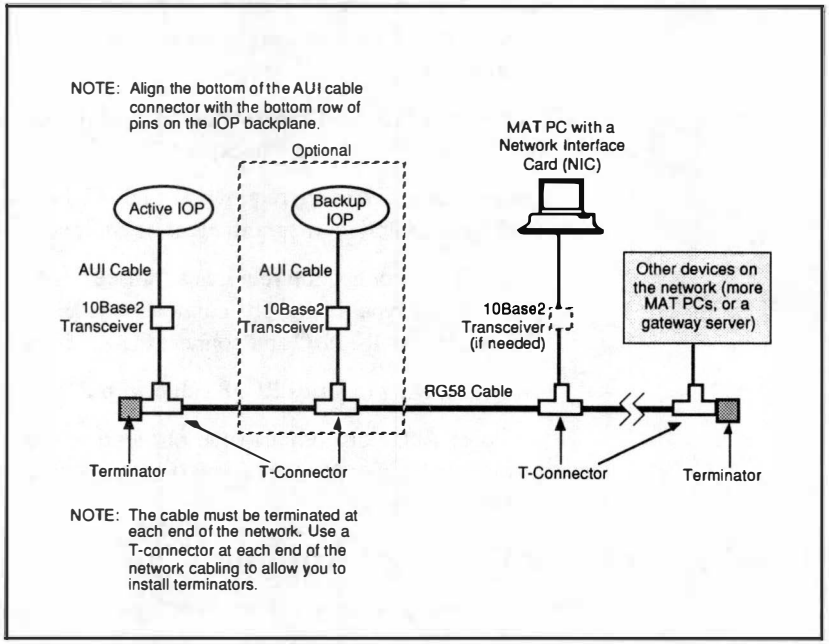


Figure 12
Cabling Detail, Example 10Base2 Installation



10BaseT Cabling Notes

- The bottom of the AUI cable connector must line up with the bottom row of pins on the Meridian 1 backplane.
- Ethernet transceivers are required at each AUI cable. Turn off the **SQE Test** switch on the transceiver, if equipped.
- An Ethernet hub is required. Hubs require external power (usually a power supply that plugs into a wall outlet).
- 10BaseT cabling requires Category 5 cable with RJ45 connectors

  Note: Although normal phone cable and Category 5 cable are similar in appearance, phone cable is not acceptable for network applications.

10Base2 Cabling Notes

- Each end of the network cable must have a terminator attached. Use a T-connector at each end of the network cable to allow you to install the terminators.
- The bottom of the AUI cable connector must line up with the bottom row of pins on the Meridian 1 backplane.
- Ethernet transceivers are required at each AUI cable. Turn off the **SQE Test** switch on the transceiver, if equipped.
- The MAT PC connection requires a transceiver if the NIC port is AUI D-connector type. If the NIC connection is BNC type, connect a T-connector to the NIC and connect the RG58 cable to the connector.
- 10Base2 cabling requires RG58 cable with BNC connectors.

  Note: Although normal television video coaxial cable and RG58 cable are similar in appearance, video coaxial cable is not acceptable for network applications.

Troubleshooting Ethernet Connections

When you have completed Ethernet configuration and cabling, test Ethernet communications by "pinging" the various network devices to verify that you can communicate between them.

1. At the MAT PC, start a DOS window.
2. Enter: **ping 47.1.1.10** (ping the active IOP—IP address 47.1.1.10 in our example)
3. If you receive a response, ping the other devices in the network to verify their connections.
4. If you cannot ping successfully, follow these troubleshooting steps:
   - — Verify that the IOP part number is NT6D63BA. If you are using Option 11C, check the Ethernet connection.
   - — Check that the AUI cable is installed correctly, as follows:
     - Verify that the connector is in the same slot as the IOP
     - The bottom of the AUI cable connector must line up with the bottom row of pins on the Meridian 1 backplane

— Ethernet transceivers are required at each AUI cable. Turn off the **SQE Test** switch on the transceiver, if equipped.

— Swapping the transmit and receive pins in the category 5 cable is not a workable substitution for an Ethernet hub. A hub is required.

If you complete these steps, and still cannot ping successfully, review all steps outlined in this installation guide to verify proper connections and configuration.

Troubleshooting PPP Connections

When you have completed PPP configuration and cabling, test PPP communications by following these suggestions.

Make sure that modem volume is turned on so that you can hear what is happening as the modem dials. This section outlines specific remedies for particular situations.

Modem does not dial

– Verify that your modem is configured to be on the correct COM port on the Control Panel, Modems, Properties, General property sheet.

  You can test the COM port to which your modem is connected by launching Hyperterminal (under **Start/Programs/Accessories/Hyperterminal**). Hyperterminal prompts you for a connection name and presents you with the phone number property sheet. In the Connect Using drop down list box, select **Direct to COM X**, where X is the COM port to which your modem is connected. Once you are in the terminal, you should be able to type the command **AT** and see the "OK" response back from the modem.

- If your modem does not respond, you may be using the wrong COM port. Go to the File/Properties menu and select **Direct to COM Y,** where Y is a different COM port. Once you have located the correct COM port, go back to MAT Navigator and bring up the properties for the system to which you are trying to connect. Click on the communication tab and select PPP from the communication profile list. Verify that the COM port you selected for this profile is the COM port that you located your modem on using Hyperterminal. Verify that the baud rate matches the settings for the M1 port into which you will dial.
- If the modem still does not dial, follow the steps above to establish a Hyperterminal connection. After issuing the **AT** command and receiving the "OK" prompt, issue the command **ATDT1234567**, where 1234567 is the phone number for the modem connected to the M1. If you do not hear the modem dialing and connecting at this point, verify that your phone line and modem cables are correctly connected. If the modem dials and connects, verify that you have dial-up-networking installed along with a dial-up-adapter. See "Configuring PC PPP Communications" on page 18.

Modem dials and connects but the connection details button reveals that scripting failed while waiting for a prompt

- Verify that the baud rate configured for the TTY on the switch matches the baud rate configured for the modem in the Navigator/System Properties/Communication property sheet/PPP profile for the system to which you wish to connect. Make sure that the data bits, stop bits, and parity match as well.

Modem dials but does not connect

- Verify that the phone number you are dialing is not busy.
- Verify that you have included all necessary digits in the phone number. Check in Navigator/System Properties/Communication property sheet/PPP profile for the system to which you wish to connect.

Modem dials and connects and the scripting is completed successfully, but the Connection Details button reveals that the session failed

- Verify that the IP address that you assigned to the local PPP interface on the M1 is the same as the IP address you entered in the address field on the Navigator/System Properties/Communication property sheet/PPP profile for the system to which you wish to connect.

- If possible, verify that you can make an Ethernet connection to the same switch.

  After establishing a PPP connection, but before canceling from the connection dialog: Open a DOS command prompt (Start/Programs/MS-DOS Prompt) and run the ping command by typing **ping 123.456.789.123** where 123.456.789.123 is the M1's local IP address (see configuring Ethernet and PPP at the Meridian 1). Verify that the data lights on your modem flash as the ping data is sent to the Meridian 1. If you do not receive a response from the M1, verify that the IP address that you assigned to the local PPP interface on the M1 is the same as the IP address you entered in the address field on the Navigator/System Properties/Communication property sheet/PPP profile for the system to which you wish to connect.

Modem dials and connects but you receive the error message "Error writing to COM port" or "Error reading from COM port".

- Verify that the modem you installed in the Control Panel matches your modem type. Remove your installed modem driver and installing a generic modem driver in its place.

  From the Control Panel/Modems, click the **Remove** button to remove your modem from the installed list. Click **Add** (to add a new modem driver). Click the check box that says "Don't detect my modem; I will select it from a list" and then click **Next** to move to the next step. Select the standard modem driver matching your modem's baud rate (for example, Standard 14400 bps Modem) and click **Next** to move to the next step. Select the COM port to which your modem is connected, and click Next. Click **Finish** to complete the modem installation. Restart the system, and try to establish a PPP connection.

Configuring Your MAT 5 System

Now that you have prepared the communications devices, you'll follow these steps to install and configure the MAT 5 system:

1. Install the MAT 5 software on the PC
2. Start and log into the MAT system
3. Create a site and enter site and system information
4. Configure users

Step 1: Install the MAT 5 Software on the PC

This section outlines the procedure for installing MAT on a PC from the distribution diskettes. For information on installing MAT from a network or for adding MAT applications, see Appendix A.

In order to simplify the installation task, an installation Wizard installs MAT 5 with your guidance. The Wizard presents dialog boxes that offer options and allow you to enter any custom information about your installation. In most cases, all you have to do is confirm that the information on the screen is correct, and click **Next**. At any time in the installation process, the Wizard lets you to move back to the previous step to allow you to make any needed changes.

> *Note:* When installing MAT 5 for the first time, the Root directory names must be 8 characters or less. For example, `C:\NORTEL` (default value) or `C:\PROGRAM\NORTEL\` and not `C:\PROGRAMFILES\NORTEL\`.

Migrating from MAT Release 3 or 4 to MAT 5

1. Install or upgrade to Windows 95 (if necessary)
2. Install Release 3 or 4 of MAT if it is not already installed
3. Restore any archived data you want to be migrated to MAT 5
4. Remove the MAT Icon from the StartUp Folder by following these steps:
   - From the **Start** menu, select **Settings** followed by **Taskbar**
   - Select **Start Menu Programs**
   - Select **Remove**

— Under **Start Menu**, select **Programs / StartUp select MATShell**

— Select **Remove**

5 From the MAT Setup procedures install MAT 5 by selecting the Install/Upgrade option.

6 Reboot the PC.

7 From **MAT Setup,** select the **Migrate** option and respond to the dialogs as necessary.

Migration should take at most 10 minutes.

8 After MAT 5 has been working successfully for a while, delete the files under **MATWORK** and **MAT**.

WARNING

Do not run the uninstall program to remove MAT4, since this will remove les shared by MAT5.

Communication profiles, user profiles, application data and site data are all converted.

9 Proceed to "General Installation" on page 35.

Upgrading from an Existing MAT 5 Release

1 Remove MAT 5 from your **StartUp Group** before installing the new version.

2 Close any applications currently open including MAT 5. Choose **Shut Down** from the **Start** button. Select **Restart the computer?** from the list of choices and click on the **Yes** button.

3 Follow the procedures detailed in the MAT 5 Installation Guide to complete the upgrade.

4 Proceed to "General Installation" on page 35.

General Installation

1 Tum off the PC.

2 Plug the security dongle into a parallel port on your PC. The dongle is a security device, provided by NORTEL, that you attach to the PC. The dongle contains a serial number that the MAT installation Wizard compares with the MAT software serial number to verify that you are authorized to install the MAT 5 software.

3 Start the PC.

4 **Important:** Stop any running applications. Close all applications, close the Control Panel, and exit any previous version of MAT with no background tasks.

5 Insert the MAT 5 setup disk 1 into the diskette drive.

6 Click the Windows **Start** button and select **Run**.

The Run dialog box appears.

7 In the listbox, enter **a:\setup** (where a: is the diskette drive).

This starts the Installation Wizard. The Wizard takes a few moments to load.

The Wizard presents the Licensing Agreement for your approval.

8 When you have read the agreement, and feel that you wish to continue, click **Yes**.

WARNING

Clicking **No** means that you do not wish to adhere to the provisions of the license. The installation procedure stops, and no software is added to the PC.

9 The Wizard presents the Welcome window.

10 The Wizard presents the Identification window.

11 The Wizard presents the Setup Choices window.

12 The Wizard presents the serial number and key code window.

The software serial number is a unique number generated when the software is manufactured. The serial number must match with the serial number of the hardware dongle attached to the PC. The Wizard verifies that the software serial number and dongle serial number match before it continues with the installation.

Your keycode identifies which MAT 5 applications and licensing options (for example, how many Meridian 1 systems) you purchased. The Wizard allows you to install all applications permitted by the keycode.

The keycode and serial number together identify the software components that the Wizard is authorized to install.

Confirm the packages that you purchased and enter the serial number and keycode. Click **Next**.

13 Enter the path for the MAT 5 executable files, MAT data files (for example, Site/System data), and MAT data files that have to be local to a PC (for example, PC Event Log).

WARNING

Once configured, these paths cannot be changed without uninstalling MAT.

14 Select the applications that you wish to install.

The Installation Wizard checks the installation environment (disk space, compatibility, and so on). If there is insufficient space, you can exit the Setup program or reduce the number of applications to be installed.

The Installation Wizard copies the files to the appropriate directories on the destination drive.

The Wizard displays progress indicators to show you how the installation is proceeding, and displays a message when the installation is complete.

When you have completed the installation process, store your software distribution diskettes in a safe place.

Converting Data from Earlier MAT Versions

After you have installed MAT, you can convert data from earlier versions of MAT into MAT 5 format. Follow this procedure:

WARNING

All data is converted to the MAT 5 format and cannot be moved back to earlier formats. You can only run this procedure on the data one time. (The original data remains in the `MATWORK` directory, so that you can archive it.)

1 Stop any running applications. Close all applications and exit MAT with no background tasks.

2 Insert the MAT 5 setup disk 1 into the diskette drive.

3 Click the Windows **Start** button and select **Run**.

The Run dialog box appears.

4 In the listbox, enter **a:setup**.

This starts the Installation Wizard. The Wizard takes a few moments to load.

5 Click the **Utilities** button. The Utilities dialog appears.

6 Click **Migrate** to migrate the data.

7 After you have installed MAT, you can view a detailed log of the installation. To view the installation log, run the Installation Wizard, and click the **Utilities** button. The Utilities dialog appears. Click the **Log** button to view the log.

Step 2: Start and Log in to the MAT System

1 To start the MAT system, select the MAT icon from the **Programs** list in the **Start** menu.

During subsequent operation, MAT will automatically begin as part of the Windows start-up routine.

2 The MAT login dialog box appears. To login, enter the following default system administrator user ID and password:

User ID: **Admin**

Password: **Admin**

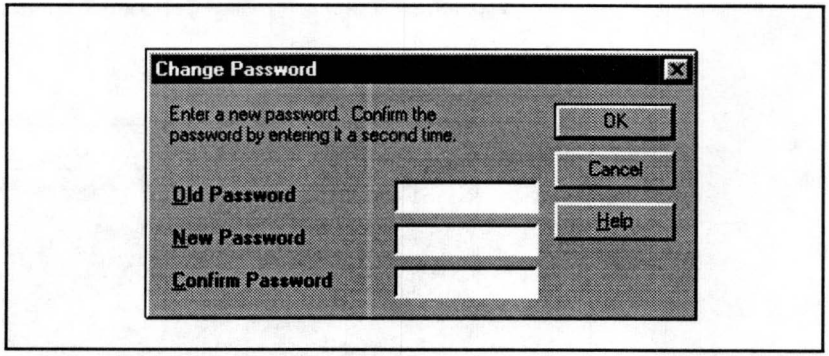
Note: For security purposes, the password does not appear as you type it in the Password field.

3 Click **OK**.

After MAT accepts your ID and password, the MAT Navigator window opens. See "MAT Navigator and System Window" on page 59 for a detailed description of these windows.

4 Immediately change the password to ensure security. In the Navigator window, choose **Change Password** from the **Security** menu to open the **Change Password** dialog. See Figure 13.

Figure 13
Change Password dialog



5 Enter your old password in the **Old Password** field.

6 Type a new password in the **New Password** field.

7 Retype the new password in the **Confirm Password** field.

8 Click **OK**.

9 A message box informs you that the password was successfully changed. Click **OK**.

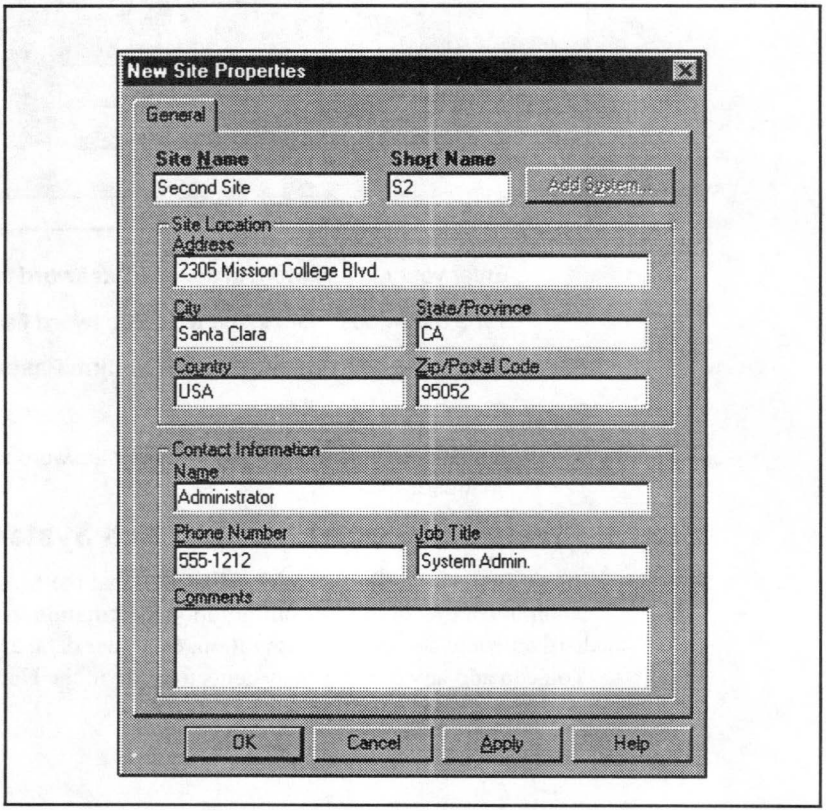
Step 3: Create a Site and Enter Site and System Information

In this step, you define your Meridian 1 so that the MAT system can communicate with it. Site configuration information includes the site name, hardware and software configuration, customer data, and numbering plan. You can add any number of systems to a site in the Navigator window, including non-MAT systems.

Note: You must have administrator privileges to add a system.

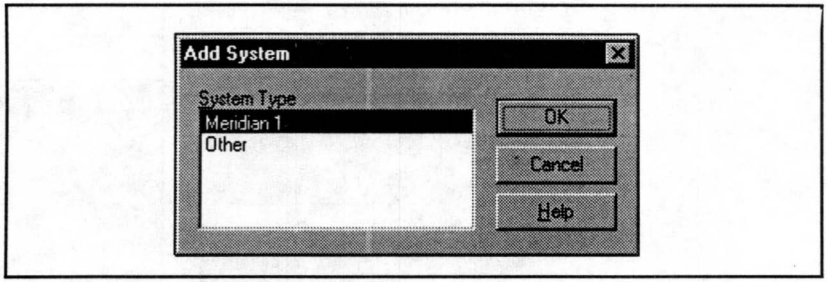
1 In the Navigator window, under the **Configuration** menu, select **Add Site**. The **Site Properties** property sheet appears. The **Site Name** and **Short Name** are required fields. Enter information in the other fields as needed. Click **Apply** to add the site and leave the window open so that you can add other sites. Click **OK** to add the site and close the window.

Figure 14
Site property sheet



2 Under the **Configuration** menu, select **Add System**. The **Add System** dialog box appears. Select the type of system that you wish to add, and click **OK**. The **System Properties** dialog appears.

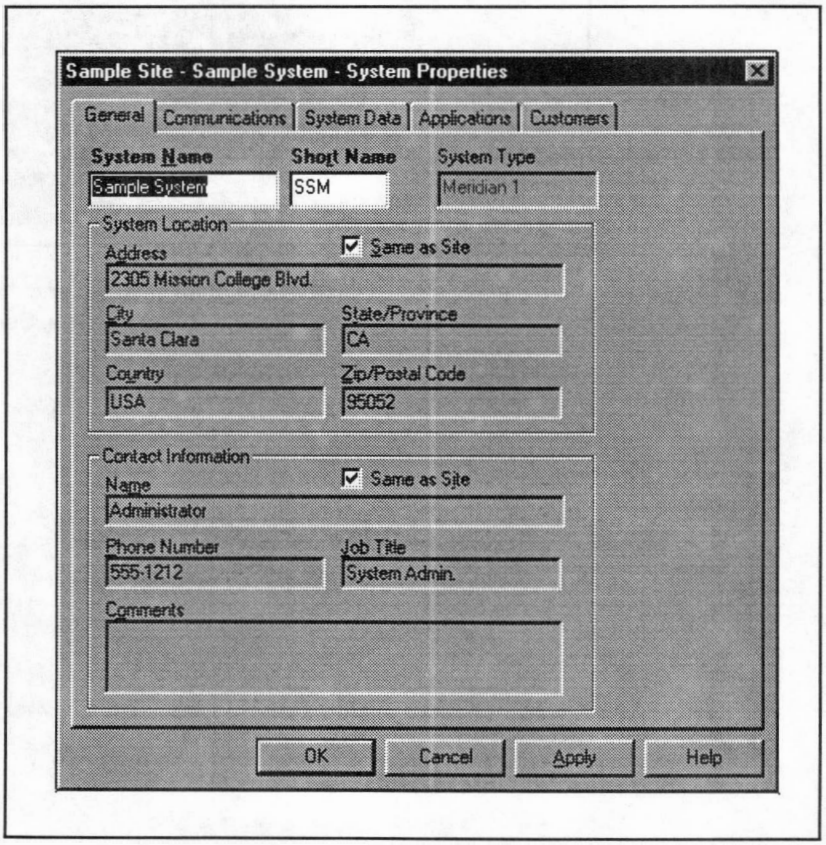
Figure 15
Add System dialog



3 Make a selection in the **System Type** list and click **OK**. The **New System Properties** property sheet appears. See Figure 16 on page 42.

4 In the **General** tab, enter the **System Name** and **Short Name**. Enter information in the other fields as needed. Click **Apply** to add the system name (this leaves the window open so that you can work in the other tabs in the dialog box).

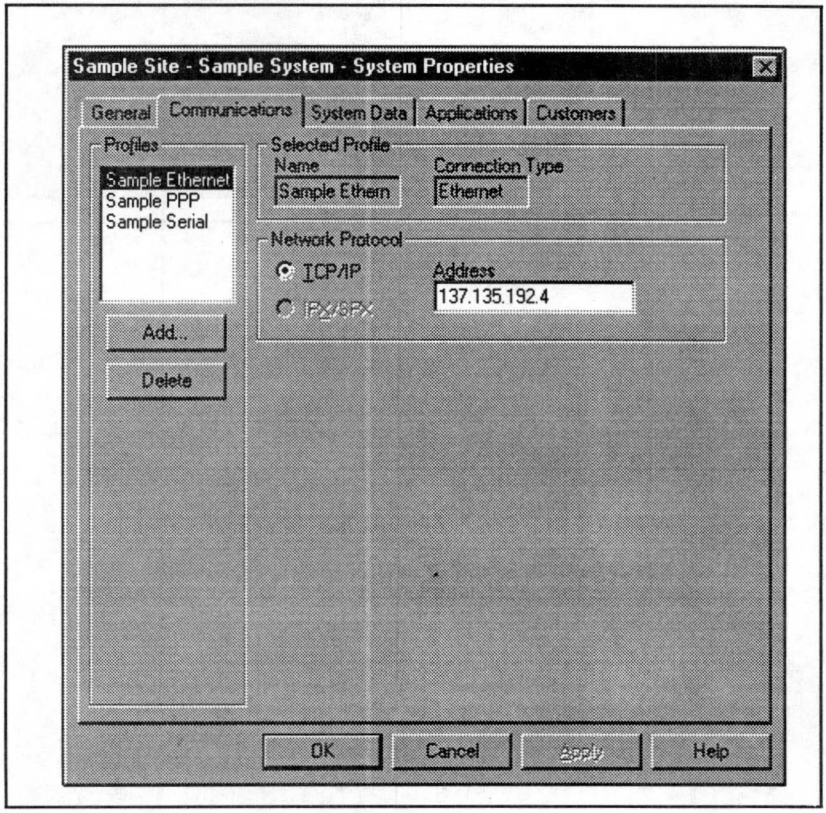
Figure 16
System property sheet, General tab



5 In this step, you create communications profiles that represent communications setups to use for given MAT applications. You might choose to use Ethernet for ESN, and Serial for Call Tracking. You can add all communications types that apply for your installation by following these steps as many times as required. In a later step, you assign these profiles to MAT applications.

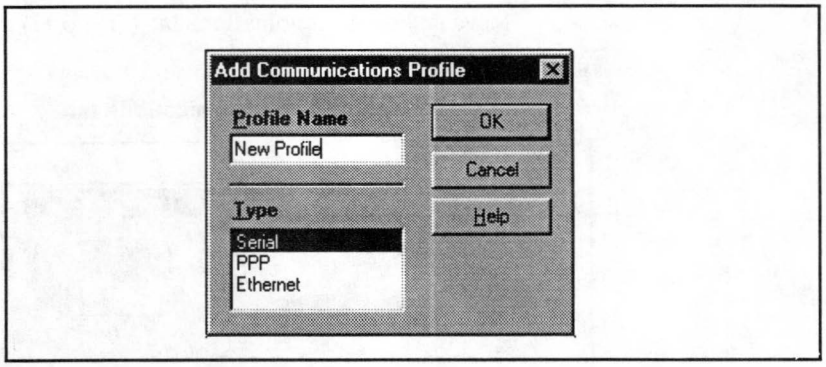
Move to the **Communications** tab (Figure 17) and click **Add.**

Figure 17
System properties sheet, Communications tab



The **Add Communications Profile** dialog appears. Select a communications type. Enter a **Profile Name** in the text box (a name that you will associate with MAT applications) and click **OK**.

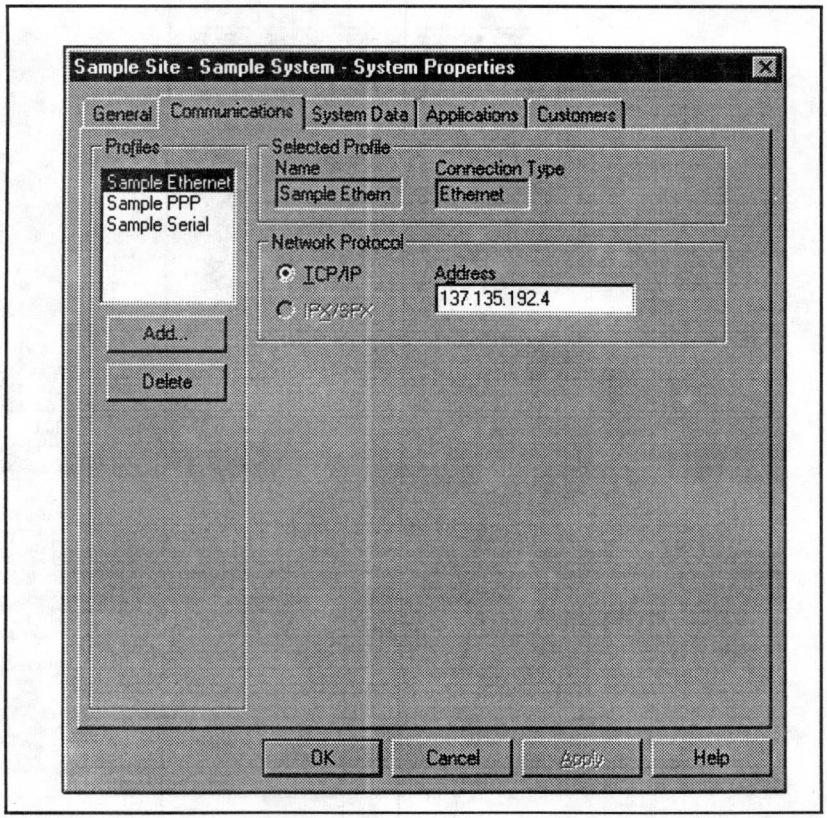
Figure 18
Add Communications Profile dialog box



The **Communications** tab re-appears.

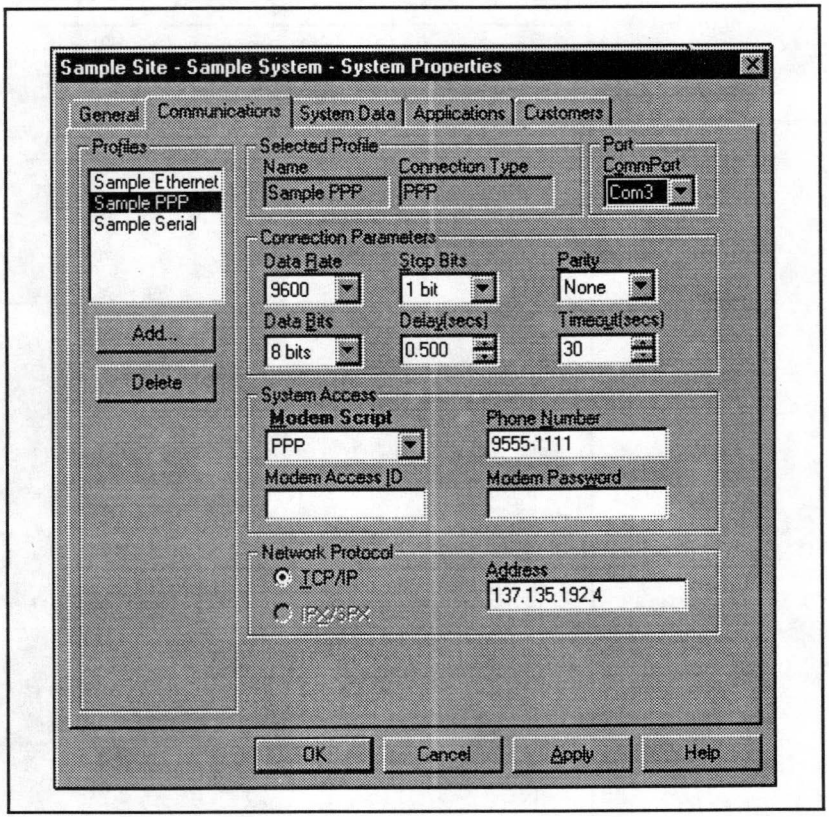
For Ethernet: Select the appropriate network protocol. Enter the IP address that you configured at the Meridian 1. Click **Apply**

Figure 19
System property sheet, Communications tab, Ethernet Profile



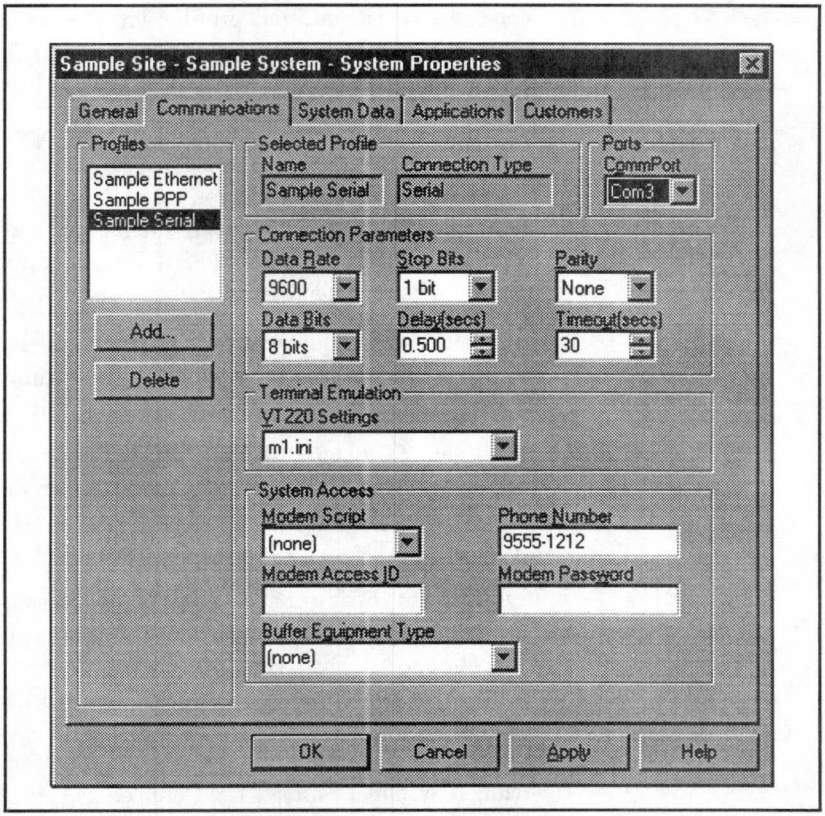
For PPP: Enter all modem parameters and dialup information. Select **PPP** in the **Modem Script** text box. Set the IP address to the local IP address, as configured at the Meridian 1. Click **Apply**.

Figure 20
System property sheet, Communications tab, PPP Profile



For Serial: Enter all modem parameters and dialup information. Select **none** in the **Modem Script** text box. Click **Apply**.

Figure 21
System property sheet, Communications tab, Serial Profile



Note: You can create multiple profiles for each type of connection. The method used to establish a connection to a switch for each application is determined by the profile (in System Properties) associated with that application at the time that you launch the application.

You can associate different profiles with the same application on two different Meridian 1s. You can also create multiple profiles for the same application on the same Meridian 1 and switch between them as needed.

For example, suppose you run MAT on a laptop, and you would like to use the System Terminal to connect to a system using PPP while you are traveling and Ethernet while you are in the switch room. You would create two profiles (a PPP and an Ethernet profile) and change the System Terminal profile from PPP to Ethernet for that system depending on your location when accessing the system.

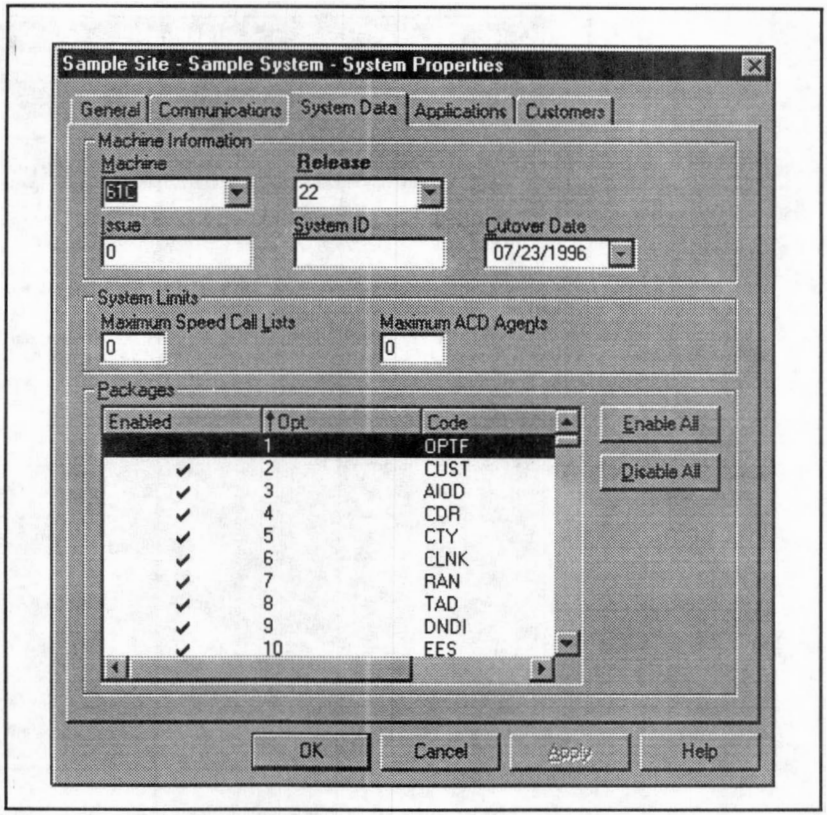
Alternately, you could create two different systems (M1–Road and M1–Switch Room) and launch the System Terminal from the appropriate System Window depending on your location.

For System Terminal, switching between Ethernet/PPP and Serial has been simplified even further. You can set up an Ethernet or PPP profile to associate with System Terminal (Overlay Passthru) and a Serial profile to associate with System Terminal (VT220).

If you are not already connected to the switch and you launch System Terminal from a System Window, a dialog asks you which type of connection to establish. Once you choose a connection type, you are connected to the Meridian 1 using that communications profile. To establish a different type connection at that time, close the System Terminal, click the **Disconnect** button in the System Window and relaunch System Terminal. The Connection Type dialog opens to allow you to choose the new connection type.

6 Select the **System Data** tab, and enter the release version for the system and package information. You can enable and disable packages in this tab. Click **Apply**.

Figure 22
System property sheet, System Data tab

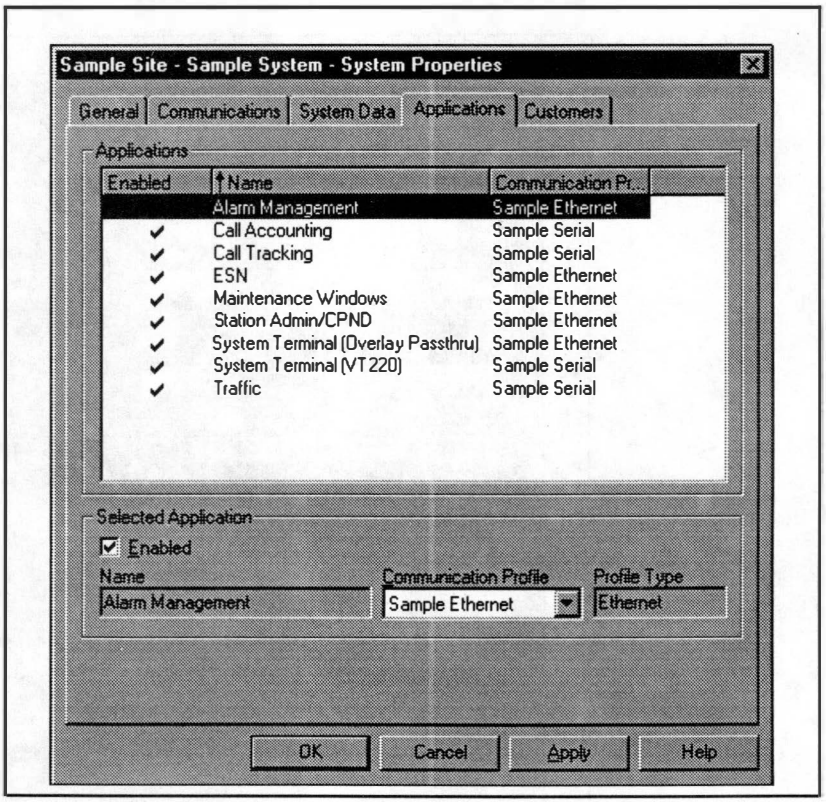


Note 1: You can copy this data directly from an installed switch by scheduling an upload from the System window using the **Update System Data** command in the **File** menu . However, you should configure the Release number here first to allow available applications to show up properly in the Applications Tab.

Note 2: If the Meridian 1 is not installed, you need to configure data in this tab before using Station Administration.

7 In this step, you assign the communications profiles to MAT applications. Select the **Applications** tab.

Figure 23
System property sheet, Applications tab



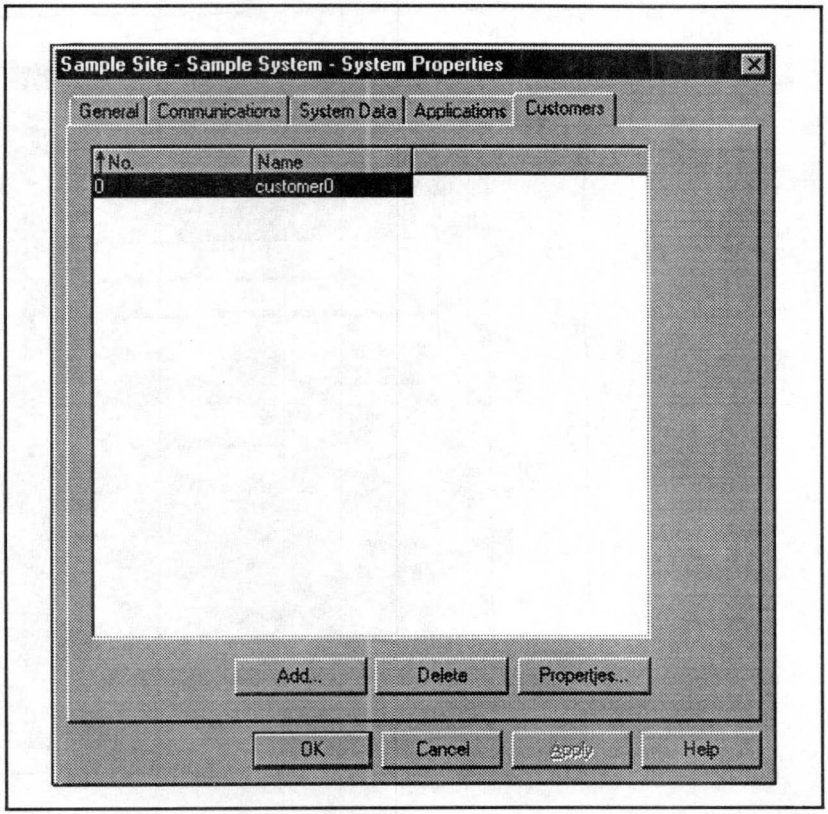
8 To enable an application, select the application and select a **Communications Profile** from the drop-down list. The **Enabled** checkbox is checked, and a checkmark appears next to the application in the list.

To disable an application, but retain its association with a **Communications Profile**, click on the **Enabled** checkbox. The checkbox is cleared, and the checkmark disappears from the list.

Note: For an application to be available in the System window, you must enable it in this property sheet.

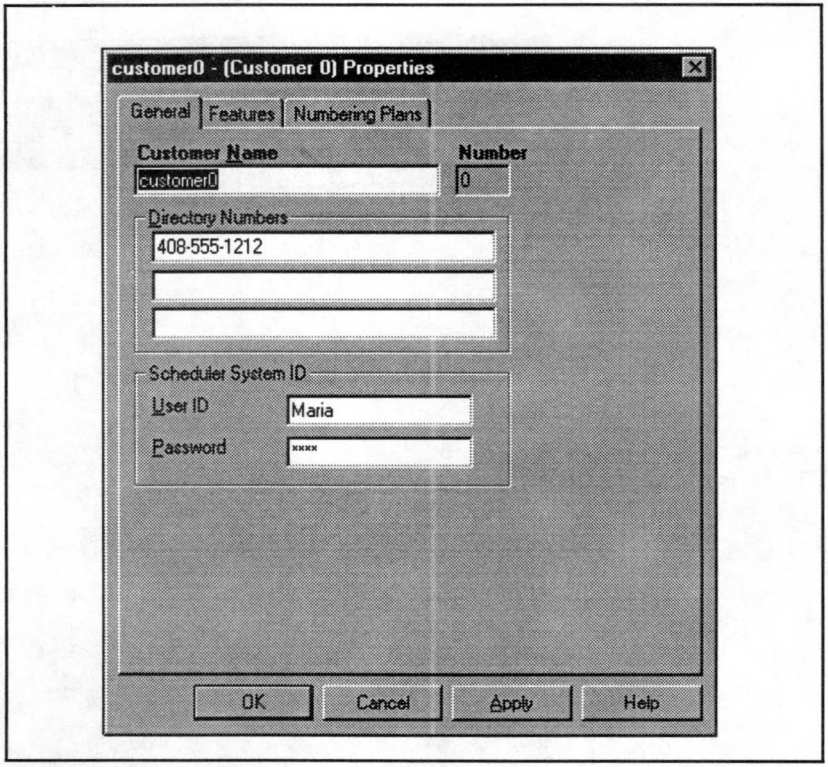
9 In this step, you add Customer profiles. Select the **Customers** tab. Customer information is required for System Administration/CPND and ESN applications.

Figure 24
System property sheet, Customers tab



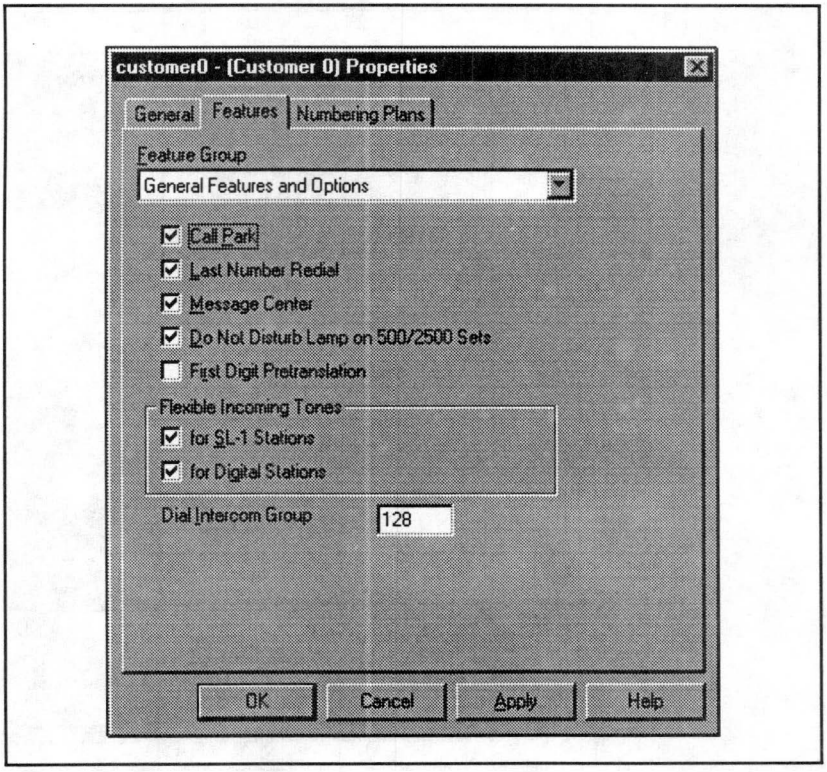
10 To add a customer, Click the **Add** button. The Customer Property Sheet opens. Select the **General** tab, and fill in the customer information. See Figure 25.

Figure 25
Customer property sheet, General tab



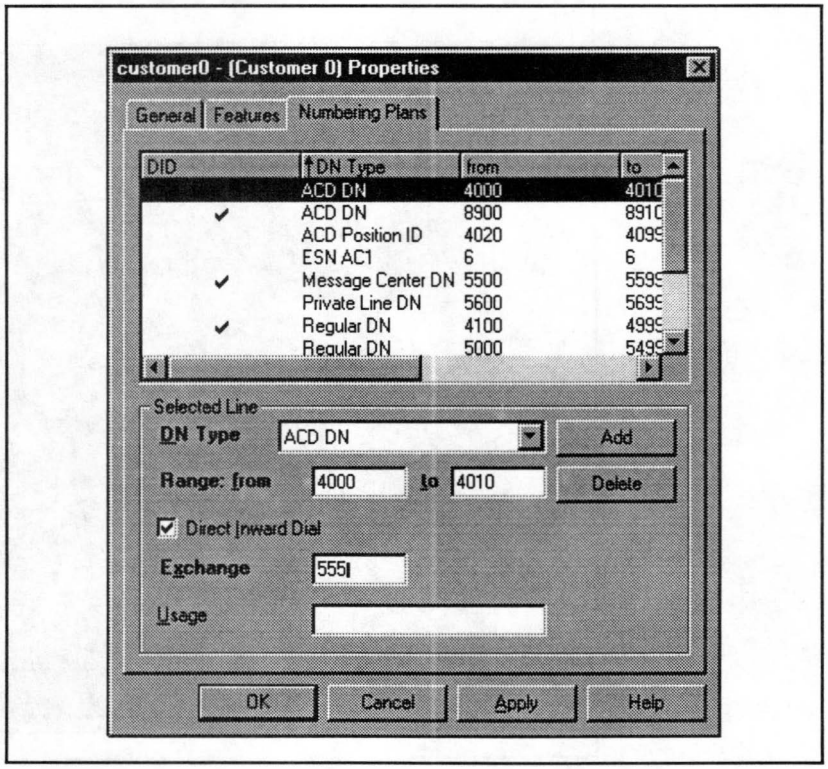
11 Select the **Features** tab, and fill in the customer information. See Figure 26.

Figure 26
Customer property sheet, Features tab



12 Select the **Numbering Plans** tab, and fill in the customer information. See Figure 27.

Figure 27
Customer property sheet, Numbering Plans tab



13 When you have completely configured a customer, click **Apply** to add the customer and leave the property sheet open so that you can add other customers, or click **OK** to add the customer and return to the System properties sheet.

14 To delete a customer, Click the **Delete** button in the System properties sheet. A delete confirmation box opens. Click **OK** to delete the customer.

To modify a customer's properties, click the **Properties** button. The Customer property sheet opens. Modify in the customer information in the appropriate tabs, and click **OK**.

15 In the System properties sheet, click **OK**. The system is now in place.

Step 4: Configure Users

Initially, only the system administrator has access to MAT modules. The system administrator defines a user ID and password for each user who needs access to the MAT system. The system administrator also grants user read/write access to specific MAT modules. Both the system administrator and users require access to Meridian 1 sites.

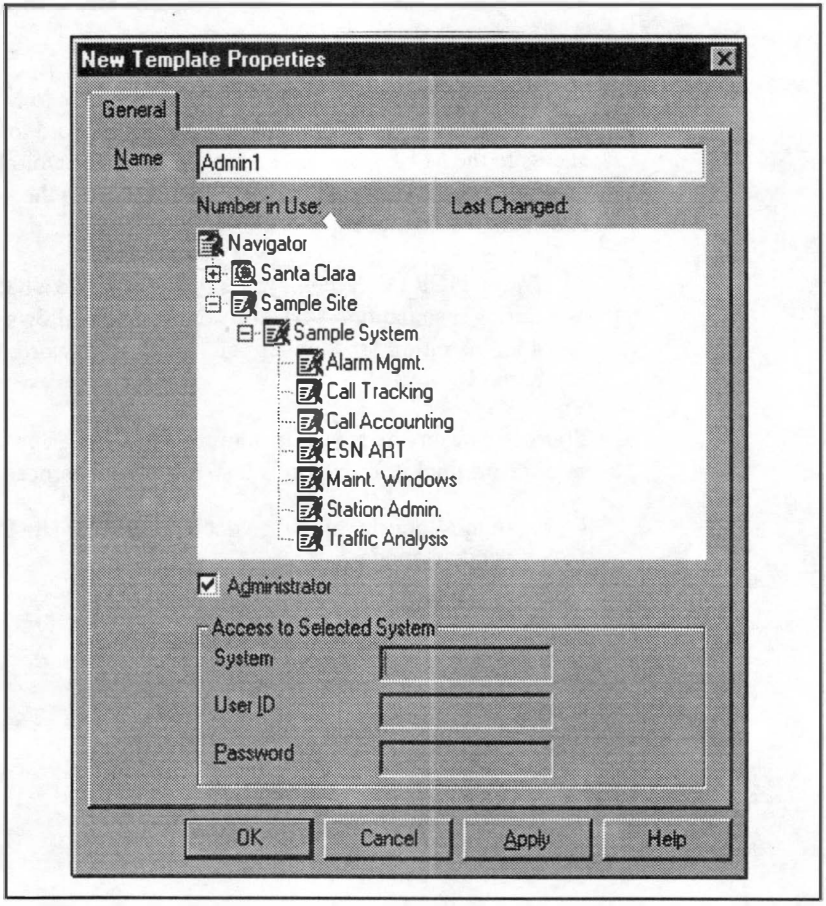
> *Note:* NORTEL recommends that you create a backup administrator during installation. A backup administrator allows you to access administration functions if you lose the passwords for other configured administrators.

You will now create a backup administrator name and password for use in case the original information is lost. Follow this procedure:

1 In the **Security** menu, select **MAT Users**. The **User** list manager window appears.

2 In the **Configuration** menu, select **Templates**. The User Templates list manager window appears. In the **Configuration** menu, select **Add Template**. The New Template property sheet appears.

Figure 28
New Template property sheet



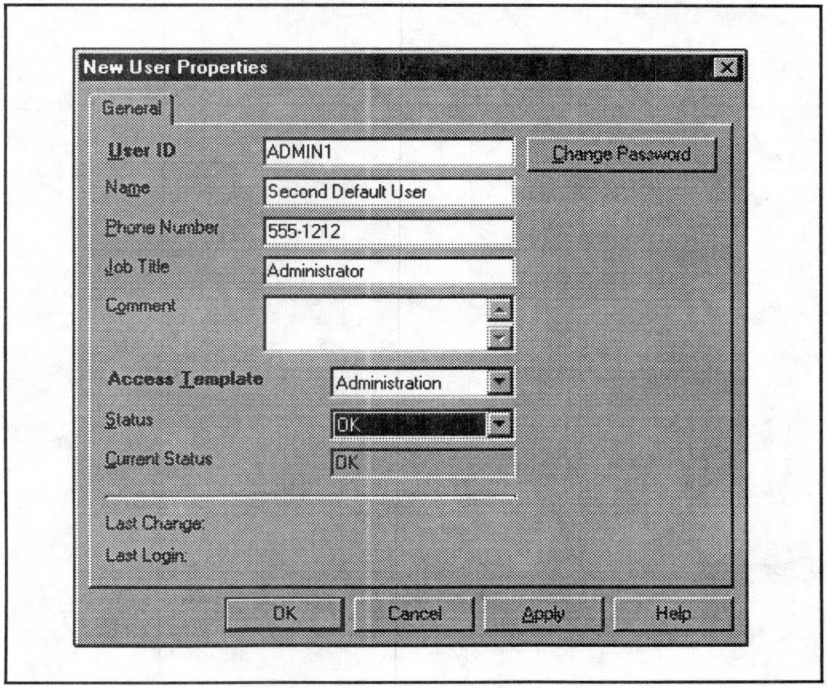
3 Enter a name for this class of user. For each site and system in the tree, use the right mouse button popup menu to assign user privileges (**Read-write, Read-only, or No Access**). Select the **Administrator** box if this class of users should have administrator privileges. The site and system icons change to reflect the access level.

4 The **User ID** and **Password** text boxes become active when you select a system. Enter values here to allow this class of user to connect to this system without having to enter User ID and Password.

5 Click **OK**. The MAT Users window appears.

6 Click the **Add User** button. The User property sheet appears.

Figure 29
User property sheet, General tab



7 Enter the information for the backup administrator and click **OK**.

If you plan to allow several people access to MAT, and wish to restrict the types of activities, you can create other MAT templates and users using the same procedures.

You're Ready to Run!

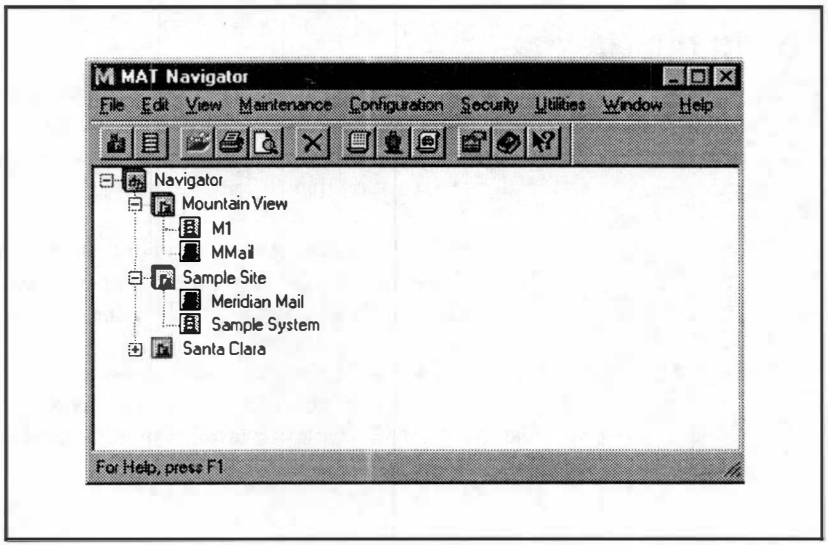
You are now ready to begin working with MAT.

After setting up MAT sites and systems, user access, and user system access, you can run any installed MAT modules and applications, such as Station Administration or Traffic Analysis. Refer to the appropriate user guide for complete details on using MAT applications.

MAT Navigator and System Window

The Navigator is MAT's main window–it allows access to all MAT systems and services. The Navigator shows the names and types of all the systems that are available to the current user, and allows you to group the systems into sites for more convenient access.

Figure 30
Navigator window



The Navigator provides the following functions:

- Displays a "tree" structure for Sites and Systems on the network managed by the current user. You access systems at a site by opening that site.
- Allows you to launch the System Window (See "System Window" on page 79.)
- Allows you to configure and administer MAT data: Sites and Systems, Users, and so on
- Allows you to launch the utility applications, for example the Scheduler
- Allows you to display the licensing and release information for all installed MAT applications

Figure 30 illustrates these functions. See "MAT Navigator and System Window" on page 59 for further details.

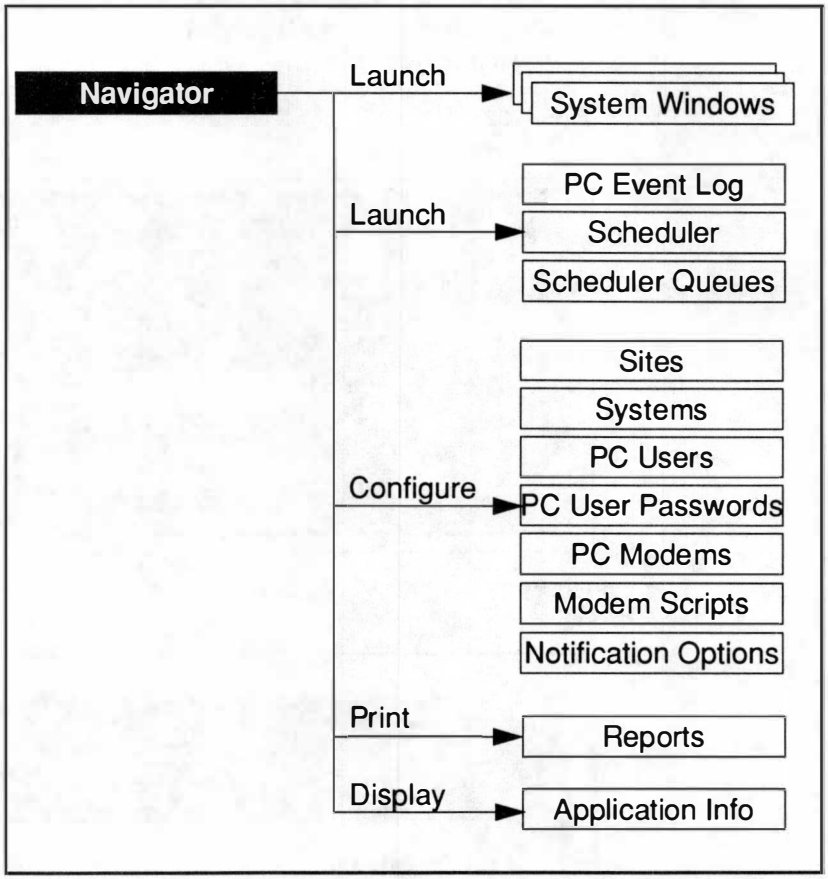
Using the Navigator

The MAT Navigator allows you to access any Meridian 1 system. In the Navigator, you open the site of interest to choose a system on which to work. Double-click a system to open its System window and launch any of the MAT applications to work on that system.

Open a site by double-clicking its name or clicking the "+" symbol next to the site. The "+" changes to a "-" when the site opens. An open site displays all systems at that site. Close a site by clicking the "-" symbol.

For Meridian 1 systems, the components that make up the system appear in the system window. For non-Meridian 1 systems or an application such as Meridian Mail, MAT displays a terminal emulation window.

Figure 31
Navigator functions



Logging in and Launching the Navigator

Select **MAT** in the Windows 95 **Programs** list. The login dialog appears (see Figure 32). Enter your User ID and password. The Navigator window appears as shown in Figure 33.

Figure 32
Login dialog

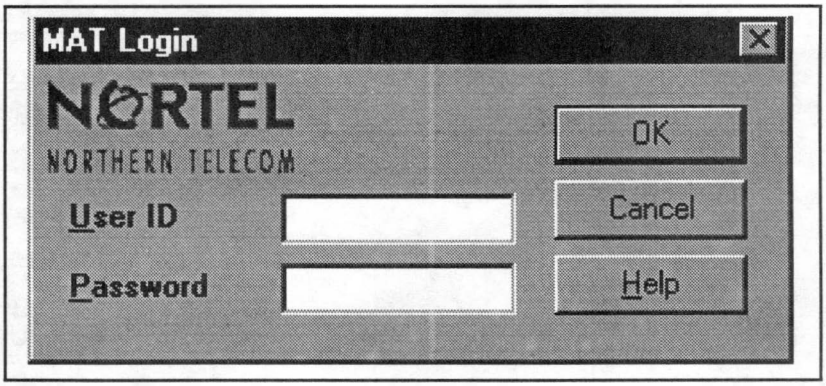
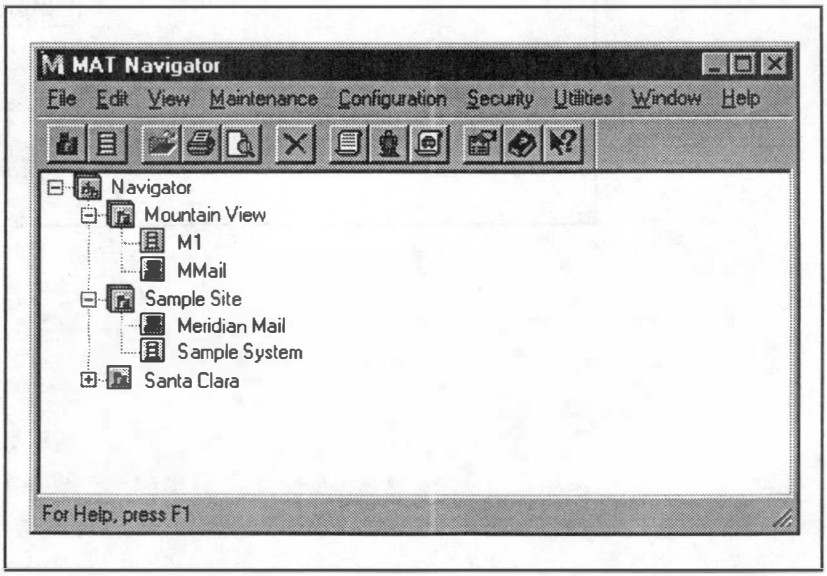


Figure 33
Navigator window



Navigator Menus

The Navigator window includes the following commands in the menu bar—keyboard shortcuts are shown after the command names:

Table 1
File menu

Command	Description
Open	Opens the selected site or system. Opens a System Window (or VT220 Window—for Meridian Mail, etc.) if a system is selected. See "System Window" on page 79.
Print **<Ctrl>P**	Prints all sites or selected sites (and associated systems) via an option in the print dialog.
Reports	Displays the complete list of reports for this window.
Print Preview	Displays information on the screen as it will appear in print
Print Setup	Displays the standard printer setup dialog to let you select a printer and printer connection
Properties	Displays detailed information about the selected site or system. This operation is also available in the right mouse button popup menu. Using this command, you can change the site or system name, location, contact information, and (for systems) communications parameters, application data, system data, and customers. ***Note:*** If you alter a site, the **New System** button is disabled until the site data is saved via the **Apply** button (this can take a moment). See "Site and System Administration" on page 68.
Exit	Allows you to log out of MAT or terminate the MAT application. **Exit** disconnects from all systems, terminates their applications, records events in the switch and PC logs, and terminates all MAT applications

Table 2
Edit menu

Command	Description
Delete	Deletes a selected site or system.

Table 3
View menu

Command	Description
Toolbar	Displays or hides the Toolbar
Status Bar	Displays or hides the Status Bar at the bottom of the window

Table 4
Maintenance menu

Command	Description
PC Events	Opens the log of PC events.

Table 5
Configuration menu

Command	Description
Add Site	Adds a new site to the Navigator.
Add System	Adds a new system to a site in the Navigator.
Modem Scripts	Allows you to create an automated modem setup script.
Event Notification	Allows you to change alarm notification options for critical system alarms.

Table 6
Security menu

Command	Description
MAT Users	Adds or deletes users from MAT.
Change Password	Displays a dialog to allow Current User Profile you to change your user password.

Table 7
Utilities menu

Command	Description
Scheduler	Allows you to manage scheduled tasks.
Queues	Allows you to manage the queue for scheduled tasks.

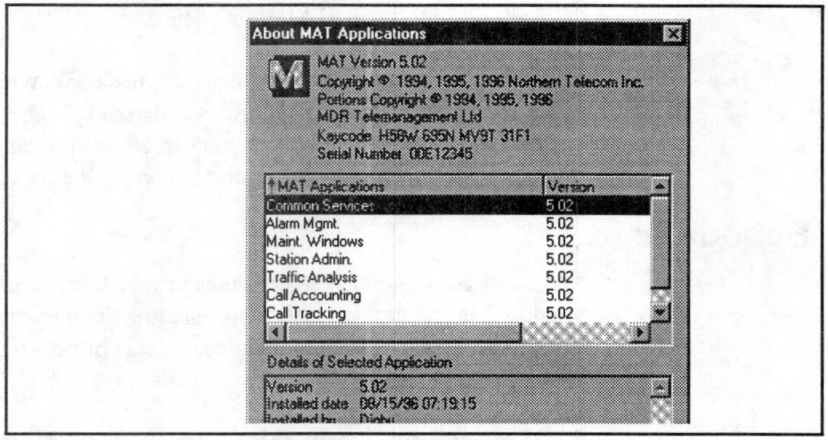
Table 8
Window menu

Command	Description
Arrange	Cascades (organizes on the screen) open windows for easy access.

Table 9
Help menu

Command	Description
Help Topics	Displays the index of help topics
What's This?	Provides context-sensitive help on the next item you select in the tree, any pull-down menu command, or toolbar icon. Clicking anywhere else takes you to the first topic in the help topic list. This operation is also available in the right mouse button popup menu. ***Note:*** Since each command in MAT is completely defined in the on-line help, many of the details of menus or dialog boxes are not discussed in this document. This is the power of on-line help—you get the guidance you need while you are running the software without the need to refer to a book.
About MAT Navigator	Displays software version for the Navigator.
About MAT Applications	Displays all installed MAT applications. If you click on an application, further details appear.

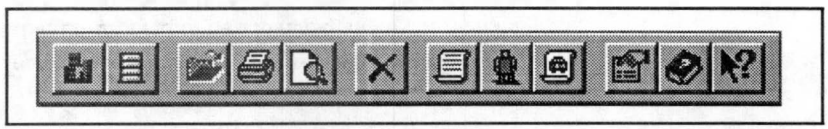
Figure 34
About Navigator window



Toolbar

The Navigator toolbar includes several buttons that act as shortcuts to the commands available in the menus. The function of each button in the toolbar appears when you move the mouse over the button. See Figure 35.

Figure 35
Navigator Toolbar



Status bar

A Status Bar is located at the bottom of the window. To display or hide the Status Bar, use the **Status Bar** command in the View menu.

The Status Bar describes actions of the menu commands as you use the mouse to navigate through menus. It also describes the actions of the Toolbar buttons as you press them. When you choose a menu command, the Status Bar describes the progress of the command while it executes. For example, the Status Bar shows **Printing text** when you choose **Print** from the File menu.

Site and System Administration

A site is typically a physical location containing one or more systems. There are several types of systems defined in MAT 5, for example, Meridian 1 and "Other" systems, such as Meridian Mail.

Users with **Administrator** privileges can use the Navigator **Configuration** menu to add, change, and delete sites and systems. The properties of sites and systems must be defined before you can connect to a system and perform maintenance tasks. See "Configuring Sites, Systems, and Users" on page 85.

Scheduler

The MAT Scheduler is used to manage scheduled, repetitive tasks. It allows you to set up predefined tasks and schedule them to run at specific dates and times. Such tasks as system updates or data collection can be set up once for multiple execution.

A task is a specific activity that the MAT system can perform, such as updating the system, generating a report, or collecting data. Note that only jobs can be scheduled; individual tasks cannot. A job may contain a single task or multiple tasks.

With job scheduling, you can request that one or more activities be performed once or on a recurring basis. When a scheduled job runs, it executes its component tasks in the sequence you specify. The Scheduler then sends these tasks to the Queue Manager at the specified time. If multiple tasks are in the same queue, the Queue Manager attempts to run them in queue sequence. You can access the Queue Manager to review and change the priority of task execution.

Accessing the Scheduler

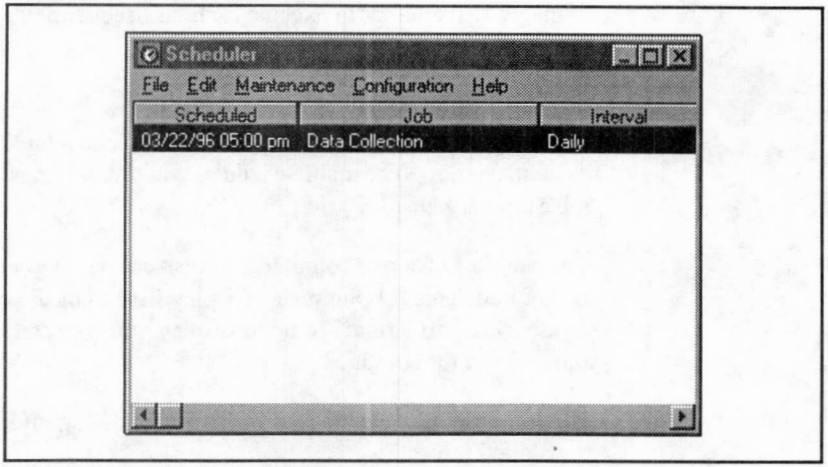
You can access the Scheduler in two different ways. You can either directly access the Scheduler from the MAT Navigator and then create a job and its component tasks, or you can access the Scheduler from a supported application, such as Station Administration.

To access the Scheduler directly from the Navigator, click **Scheduler** from the Utilities drop-down menu of the MAT Navigator window. This may be necessary if no users are logged onto MAT and you wish to create or edit a scheduled job without running any supported applications.

To access the Scheduler from a supported application, select the **Schedule** command where it appears. This is the more common method of running a scheduled job since most required tasks are run from a particular application (e.g., data collection).

Once you access the Scheduler, the following window will appear.

Figure 36
Scheduler window



How the Scheduler works

The Scheduler reads job data and builds a list of tasks and their schedule information in memory. Every minute, the Scheduler compares the current time with the scheduled time of each entry in the task list. When the times match, the tasks are executed sequentially, allowing one task to complete before the next task begins. If you close the Scheduler, the task list is lost–the task list is rebuilt the next time you run the Scheduler.

Jobs & Tasks

MAT Scheduler is used to execute activities (jobs) at scheduled dates and times. Each job consists of at least one task (or set of tasks) which can then be scheduled to run at a specific time. A task is a specific activity which the MAT system will execute as part of the job.

Only jobs can be scheduled; tasks cannot be scheduled separately. When the job runs, it executes its component tasks as they are listed in the Task List of the Job Properties dialog. In most cases, each job will only contain one task.

If a job contains multiple tasks, each task will be sent to the queue one after the other once the job starts. The Scheduler will send these tasks to the Queue Manager at the time of execution and run the Queue Manager accordingly.

If multiple tasks are waiting in a queue to run at the same time, the Queue Manager will attempt to execute each task sequentially as it appears in its queue.

Job Summary Display

As each job is configured and added to the Scheduler, it will be displayed in its main window. The main Scheduler window contains this list of jobs in this Job Summary Display grid.

You can use the cursor commands to resize and move each column in this grid as required. This Job Summary Display lists all of the configured jobs and their basic information. From this display grid, you can scan through each job and select it for editing.

The Job Summary Display grid lists the following information for each configured job:

- Scheduled
- Job
- Interval

Configuring & scheduling a job

Once you access the MAT Scheduler, you can begin to schedule its jobs and add tasks to it. Use the Scheduler editor commands to create and update jobs throughout your session.

The first step in setting up a job is to select a job and assign a single task or group of tasks to this job. You can select an existing job to edit or create a new job.

Once you have assigned the tasks to the job, you must specify the date and time at which the job will be run as well as any intervals for subsequent executions of the job.

If you are creating a new job from another MAT application, that is if you are scheduling an activity from that application, then the system will directly access the Job Properties dialog. From this dialog, you can enter the job's general information, its individual tasks and its scheduled date and time.

To create a new job directly from the Scheduler, click **Add Job** from the Configuration drop-down menu. Again, this will access the Job Properties dialog from which you can enter this job's information.

To edit an existing job, click once on the job record line in the Job Summary Display to highlight it and click **Properties** from the File drop-down menu (or simply double-click on the job record line). Again, this will access the Job Properties dialog from which you can edit this job's information.

Once you have accessed the Job Properties dialog, enter the job's information by selecting the following tabs:

- General
- Task
- Schedule

Once you have entered the job's details, tasks and scheduling information, click **OK** to save it and exit to the Scheduler main window.

If you accessed this function from the Scheduler main window, then closing the Job Configuration dialog will return you to the main window.

If you scheduled a job from a task command dialog (from another application), then this will return you to that application. The job will then be executed at its scheduled time.

Example job configuration

The following example highlights the main steps involved in configuring and scheduling a job which is invoked from another MAT application.

Scenario

A user wishes to schedule a data collection from MAT Call Accounting daily at 5:00 p.m. The initial data collection will be run on the current day which is 03/22/96.

Steps to scheduling a job

1 Open a system and access Call Accounting. From Call Accounting, click **Communications** and click **Schedule Data Collection** from its drop-down menu. Since you are creating a new task, you must either create a new job to which this task belongs or add the task to an existing job. Remember that an activity such as data collection is a task which is associated with a job. You cannot schedule a task; only a job.

2 When you click **Schedule Data Collection** from Call Accounting, the Add Task for Scheduling dialog will appear prompting you to either add this task to an existing job or create a job and add the task to the new job.

Note: For this example, you will create a new job. Therefore, click **Add New Job** from this dialog. This will access the Scheduler Job Properties dialog.

3 In the Job Properties General tab fields, enter the following:

Name: **Data Collection** (used for informational purposes)

Queue: **Data Collection** (used by the Queue Manager to create a queue by this name)

4 Click the **Task** tab to review the tasks which are added to this job. Notice that the Data Collection command is the only task in this list.

5 Click the **Schedule** tab to enter the scheduling criteria for this job. In the Schedule fields, enter the following:

Interval: **Daily**

Start at:	Month: **03**	Day: **22**	Year: **96**
	Hour: **5**	Minute: **00**	am/pm: **pm**

6 Click **OK** to save this configuration. Notice that the Job Summary Display grid will appear with this job added to it.

This completes the example job configuration. This job will then be run at the scheduled time. Ensure that the Scheduler is running at the scheduled time so it can run the job.

Device contention

The Queue Manager contains certain restrictions when managing multiple queues for a single device. This applies when multiple jobs are sent by the Scheduler to the Queue Manager for execution and therefore have multiple queues stored in the Queue Manager database. A job is a group of tasks which is sent to the Queue Manager as a queue. If these queues attempt to access the same device (e.g., COM port) at the same time, then only one queue will be able to use it successfully. All other queues will NOT be able to access that device and will therefore not run.

The following example helps demonstrate this contention.

Example for device contention

The following jobs have all been scheduled to run daily at 12:00pm. They will all invoke separate queues which will attempt to use COM 2 on the MAT PC.

- Call Accounting data collection
- Call Tracking real time access
- Traffic Analysis data collection

At 12:00pm, each of these jobs will be sent to its own queue in the Queue Manager which will then attempt to access COM 2. Since they will all attempt to access COM 2 at the same time, COM 2 appears to be available to each of them. Each queue will then run a task. However, COM 2 will ONLY be available to the first task which executes. Since the remaining tasks cannot access COM 2, they will not execute.

Late Execution

This device contention issue also applies to queues which have Late Execution enabled. If the MAT system is shut down and starts up again, any jobs which have Late Execution enabled (and their scheduled times have elapsed) will attempt to run immediately. If these jobs attempt to access a single device at this time, then only the first task will be able to access it. All others will fail.

To prevent this contention problem from occurring for jobs with late execution, you should use caution when enabling this option. Ensure that only the required jobs have this option enabled or verify that they will not access the same device during a system shut down and start up.

Solution

To prevent this from occurring during normal system operation, use the following guidelines.

- If you need to schedule multiple jobs for a single device all at the same time, or if you cannot schedule the jobs so that you are sure that the device will be released in time, then schedule the jobs as multiple tasks sent to a single queue. The Queue Manager can then manage these tasks in the single queue and send them to the device as each task is completed. Each task in the queue will wait for the previous task to release the device before attempting to access it. This way, you will ensure that all of the tasks will be able to access the device and execute successfully.
- This is a recommended solution since it allows the Queue Manager to manage the tasks for a single device allowing each task to use the device as it becomes available.
- If you need to schedule jobs at different times and they all require a single device, ensure that these jobs are scheduled to run at times far enough apart to allow the device to be released by a queue before the next job is scheduled to run. Also ensure that the Late Execution option is disabled for each job in case of a system shut down and start up.

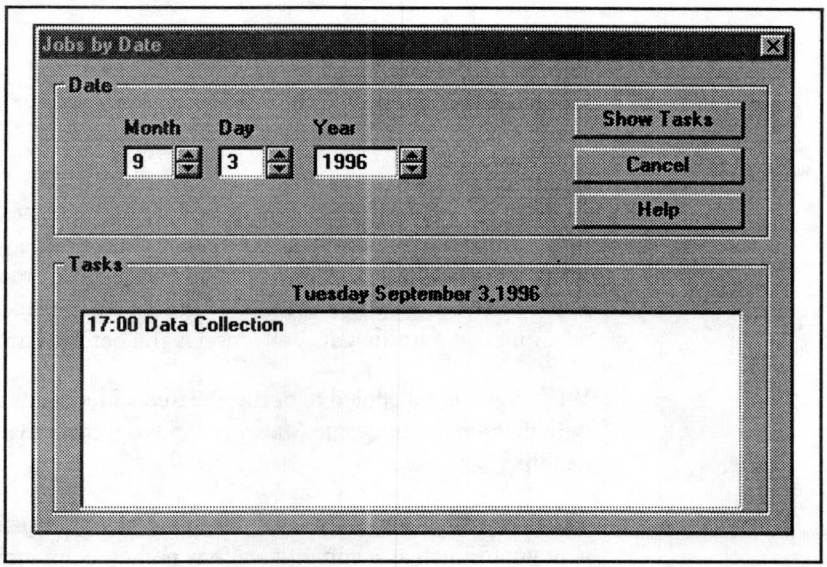
File menu

The File menu contains functions which allow you to manage and edit the configured jobs as well as print reports and close the Scheduler.

The following is a list of these functions:

- Suspend
- Jobs by Date (See Figure 37)
- Print Setup
- Reports
- Properties
- Close

Figure 37
Jobs by Date window



Edit menu

The Edit menu contains the Delete function which is used to delete the configured jobs which are listed in the Job Summary Display.

Maintenance menu

The Maintenance menu contains functions which allow you to enable, disable or run the configured jobs which are listed in the Job Summary Display.

The following is a list of these functions:

- Enable
- Disable
- Run Now

Configuration menu

The Configuration menu contains functions which allow you to create and edit the Scheduler jobs and tasks as well as access the Queue Manager.

The following is a list of these functions:

- Add Job
- Add Task
- Queue Manager

Queue Manager

The MAT Queue Manager is used to store and execute the scheduled jobs as defined in the MAT Scheduler. The role of the Queue Manager is to ensure that a sequence of tasks are performed in a specific order, allowing each task to run to completion in a designated order before executing the next (e.g., ensuring that a traffic data collection is run before a traffic data parse).

When a job is scheduled to occur, the Scheduler sends all tasks associated with that job to the Queue Manager for assignment to a specific queue for handling.

The Queue Manager is also useful in situations where a non-shareable facility is required, such as a communications port. A communications port may serve a number of communications scripts which cannot all run simultaneously. The Queue Manager allows the system to manage multiple requests through a single queue model.

The Queue Manager contains a number of individual queues. Each queue is responsible for a job, although multiple jobs may share a single queue.

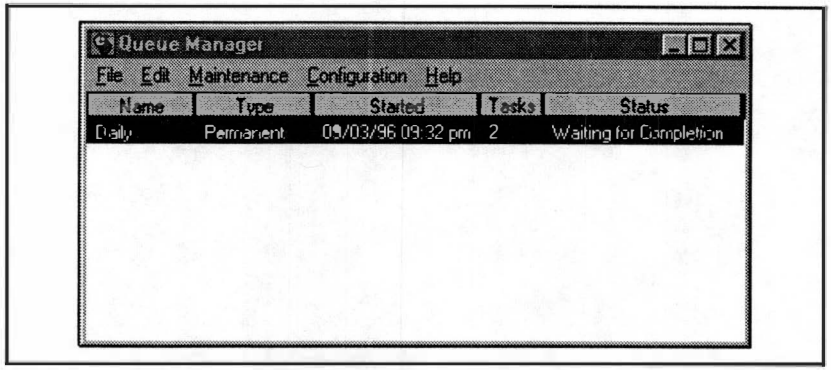
The Queue Manager is responsible for placing jobs and tasks into the correct queue for handling. Although there is only one Queue Manager, there may be a number of active queues. Each queue executes its own tasks sequentially, but all queues operate independently.

Accessing the Queue Manager

To access the Queue Manager directly from the MAT Navigator, click **Queue** from the Utilities drop-down menu of the MAT Navigator window. The Queue Manager window will appear with all of the configured queues listed in its main window–the Queue Summary Display. Once you have accessed the Queue Manager, you can use it to create and edit its configured queues.

The Queue Manager window is shown in Figure 38.

Figure 38
Queue Manager window



The Queue Manager window lists all of the configured queues and their basic information. From this display, you can scan through each queue and select it for editing.

Configuring a queue

Once you have created and added a queue to the Queue Manager using the Scheduler, you can access it again to edit its properties or add tasks to it as required.

To edit a queue, either double-click on the queue record in the Queue Summary Display grid or click once on the queue record and click **Properties** from the File drop-down menu. Edit this queue by selecting from the following tabs in this dialog:

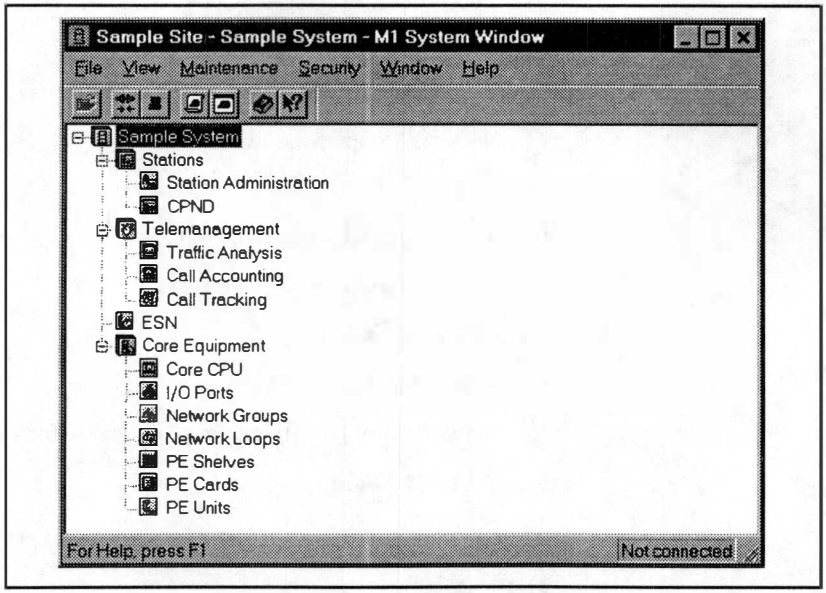
- General
- Tasks

Once you have entered the information for each queue, click **OK** to save it and exit to the Queue Manager main window.

System Window

From the Navigator, once you double-click the system on which you wish to work, the System window for that system appears. See Figure 39.

Figure 39
System window



The System window allows you to launch the following applications (some of these applications are purchased separately):

- Alarm Banner
- Events
- System Terminal (Ethernet or PPP)
- System Terminal VT220 (serial)
- Core Equipment
  - Network Loops window
  - CPU window
  - IPE Shelves window (not applicable for Option 11C)
  - PE Cards window
  - PE Units window
  - B and D-channels window
  - Network Groups window (not applicable for Option 11C)
  - I/O Ports window
- Station Administration
- Traffic Analysis
- Call Accounting
- Call Tracking
- ESN Analysis and Reporting Tool

System window menus

The following tables detail the menus available in the system window.

Table 10
File menu

Command	Description
Open	Opens the selected application.
Session Connect	Establishes a connection to the system.
Session Disconnect	Disconnects the system.
Update System Data	Updates system properties on the PC by coping this information from the switch.
Close	Closes the System window and all related windows.

Table 11
View menu

Command	Description
Status Bar	Displays or hides the Status Bar.
Toolbar	Displays or hides the Toolbar.

Table 12
Maintenance menu

Command	Description
Alarm Banner	Launches the Alarm Banner application.
Events	Launches the Events application.
System Terminal	Launches the System Terminal application. See "System Terminal" on page 103.

Table 13
Security menu

Command	Description
Connected Users	Displays the list of users currently connected to this system.

Table 14
Window menu

Command	Description
Arrange	Arranges the system's windows in a cascade fashion. The Alarm Banner is not affected.
Close Related Windows	Closes all windows belonging to this system (except the System window itself).

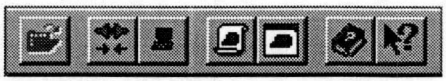
Table 15
Help menu

Command	Description
Topics	Displays the index of help topics.
What's This?	Provides context-sensitive help on the next item you select in the tree, any pull-down menu item, or toolbar icon. Clicking anywhere else takes you to the first topic in the help topic list. This operation is also available in the right mouse button popup menu.
About System Window	Displays software version information for the System window

Toolbar

The System window toolbar includes several useful buttons. The function of each button in the toolbar appears when you move the mouse over the button. See Figure 40.

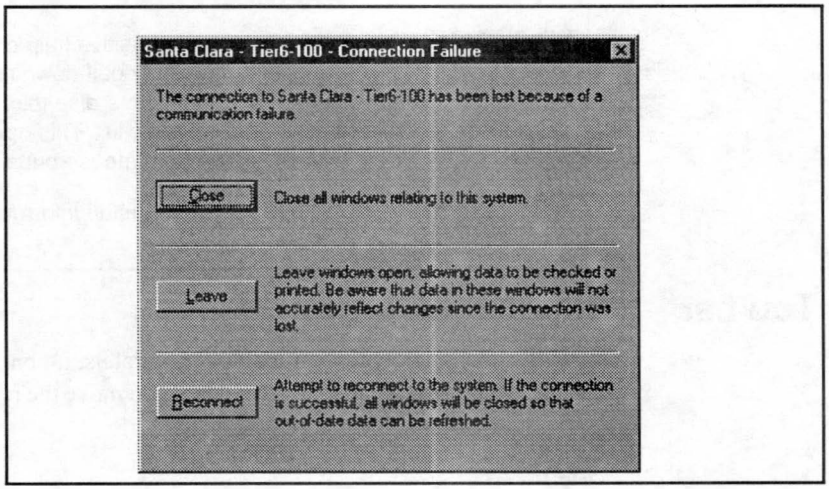
Figure 40
System window Toolbar



Responding to a connection failure

If you are connected to a MAT system and that connection fails, a warning message appears. See Figure 41. You are given the following options:

Figure 41
Connection Failure dialog



- Close all system windows and reconnect to the system
- Leave the system windows open so that you can copy or print any or all of the following information:
  - Command results in the System Terminal window or any open Maintenance window.
  - Alarms or events in the System Event Log.
  - Maintenance window objects, such as network loops within the Network Loops window.

  Note: When you have finished printing the desired information, close the system window and reconnect to the system.
- Attempt to reconnect to the system.

Configuring Sites, Systems, and Users

This chapter provides detailed instructions for defining your MAT system and MAT user access. Only MAT system administrators have authorization to perform these tasks.

Site and system administration

A site is typically a physical location containing one or more systems. There are several types of systems defined in MAT 5, for example, Meridian 1, and Other (non-Meridian 1 systems).

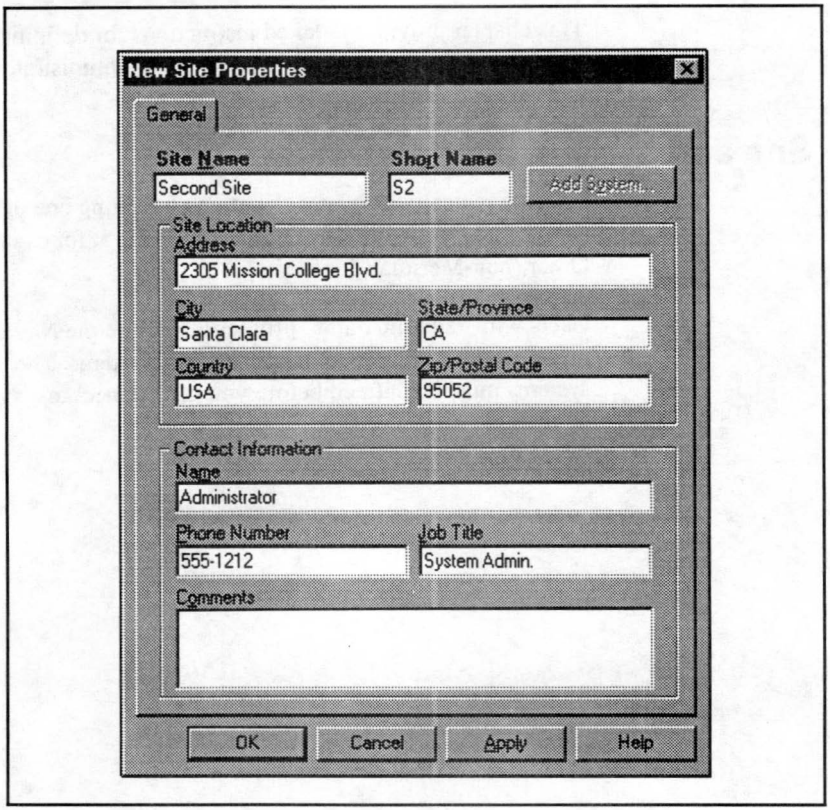
Users with "administrator" privileges can use the Navigator **Configuration** menu to add, change, and delete sites and systems. The properties of sites and systems must be defined before you can connect to a system and perform maintenance tasks.

Adding a site

You can add any number of sites to the Navigator window. Follow these steps to add a site:

1 In the Navigator window, choose **Add Site** from the **Configuration** menu. The **Site Properties** window appears. See Figure 42.

Figure 42
New Site Properties sheet



2 Fill in the **Site Name** and **Short Name** fields.

The **Site Name** appears in the Navigator tree. The Short Name is an abbreviated site name that displays in the window title bar when space is limited.

3 In the **Site Location** box, fill in the site address information.

4 In the **Contact Information** box, fill in the contact name and related information.

5 To add a new system to this site, click **Add System**. The Add System dialog box provides choices on the types of system you can add. Select a system type and click **OK**.

6 The System Properties window opens to allow you to define the system. See "Adding a system" on page 87.

7 Click one of the following buttons:

— **OK** adds the site and closes the property sheet

— **Apply** adds the site and leaves the property sheet open

— **Cancel** closes the dialog box without adding the site

The new site is added to the Navigator tree in alphabetical order.

Adding a system

You can add any number of systems to a site in the Navigator window, including non-Meridian 1 systems. You must have administrator privileges to add a system. Follow these steps to add a system to a site:

1 In the Navigator window, select the desired site.

2 Choose **Add System** from the **Configuration** menu or the right mouse button pop-up menu. The Add System dialog box provides choices on the types of system you can add. Select a system type and click **OK**.

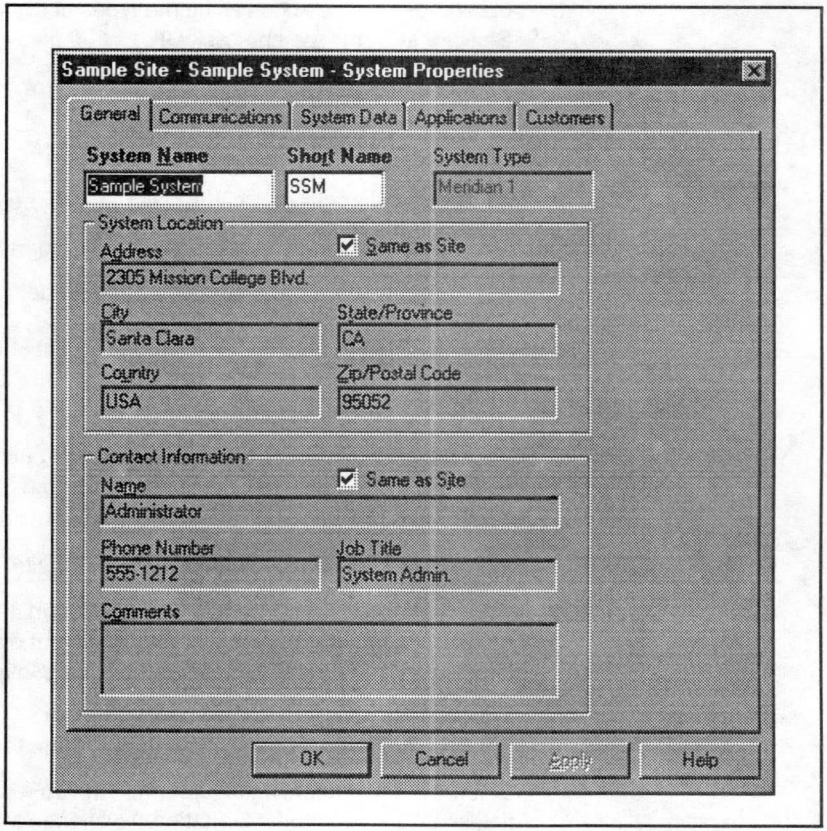
3 The **System Properties** window opens to the **General** tab.

4 Select the tab containing the information you wish to enter. Bolded fields indicate required information. To change a value, edit the field or select a different item from a field popup menu. An arrow within a field indicates a drop-down list of choices. Press the arrow to select from the list. For detailed steps, see the on-line help for each of the following tabs:

— The **General** tab defines general system properties, such as the system name, location, and contact. See Figure 43.

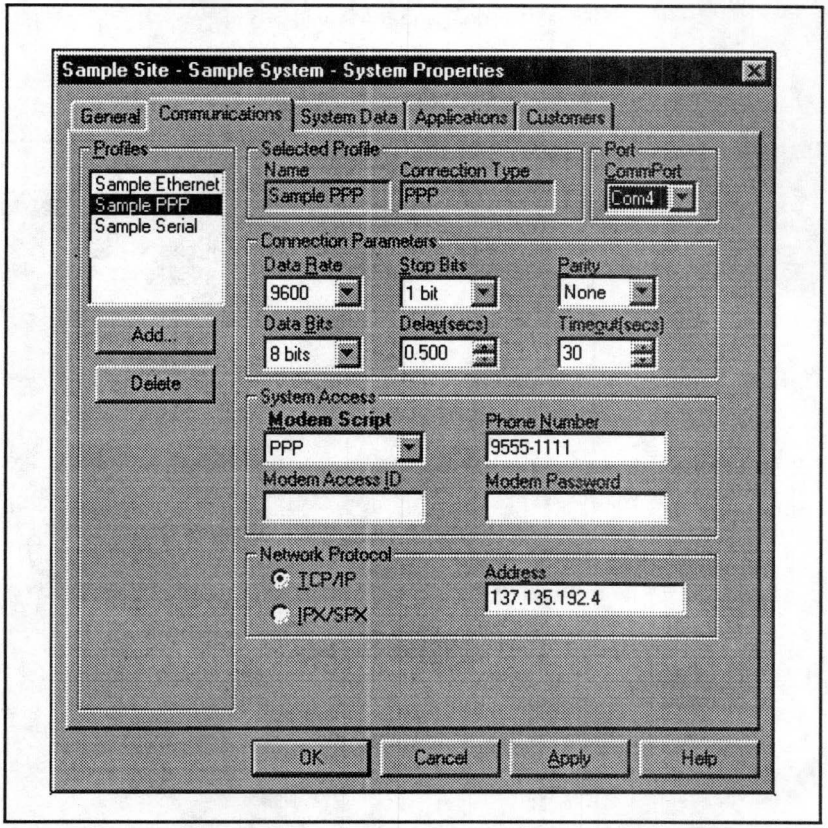
You can make system location and contact information the same as site information by clicking the **Same as Site** checkbox.

Figure 43
System Properties dialog—General tab



– The **Communications** tab defines the types of communications profiles that may be applied to system applications (one profile may be used for multiple applications). See Figure 44.

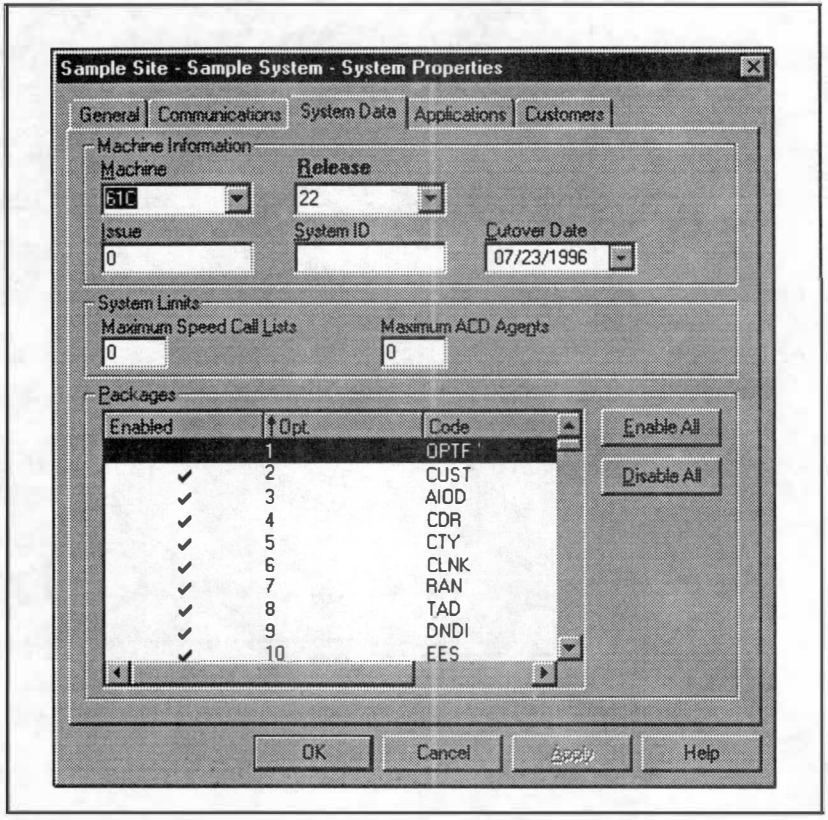
Figure 44
System Properties dialog—Communications tab



– The **System Data** tab defines a Meridian 1 system type, X11 release, and equipped packages. See Figure 45.

Note: You can copy this data directly from an installed switch by scheduling an upload with the File menu Update System Data command in the System window. However, you should configure the Release number here first to allow available applications to show up properly in the Applications Tab.

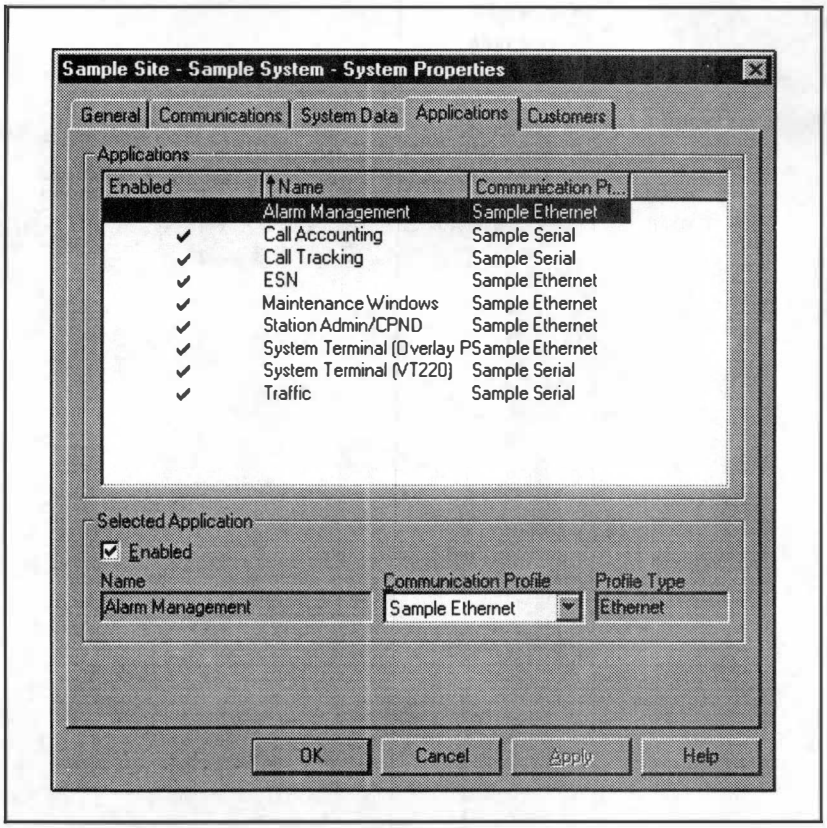
Figure 45
System Properties dialog—System Data tab



– The **Applications** tab defines the MAT applications that will appear in the System window and the communications profile to be used with each application. See Figure 46.

Note: You must enable an application for it to be available in the System window. **Update System Data** uses the communication profile for Station Administration.

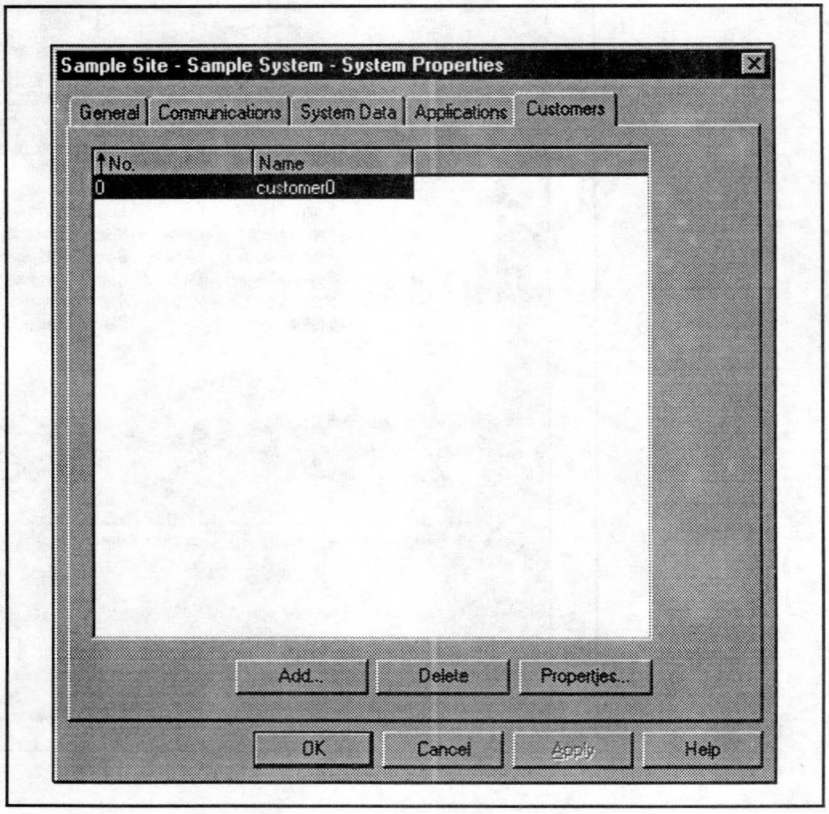
Figure 46
System Properties dialog—Applications tab



– The **Customers** tab lists the customers currently defined for this Meridian 1 system. You may add new customers, delete customers, or review the properties of a selected customer. When you add a new customer, you configure the Meridian 1 features and numbering plans that are available to the customer. In this step, you add Customer profiles. Select the **Customers** tab.

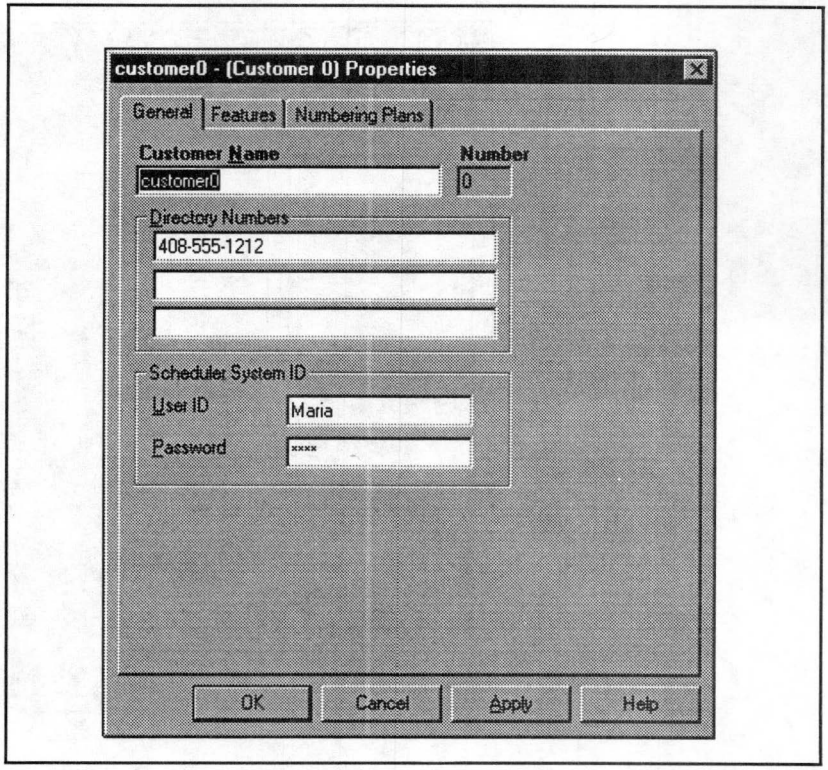
Note: Customer information is required for System Administration/CPND and ESN applications.

Figure 47
Customers tab



5 To add a customer, Click the **Add** button. The Customer Property Sheet opens. Select the General tab, and fill in the customer information. See Figure 48.

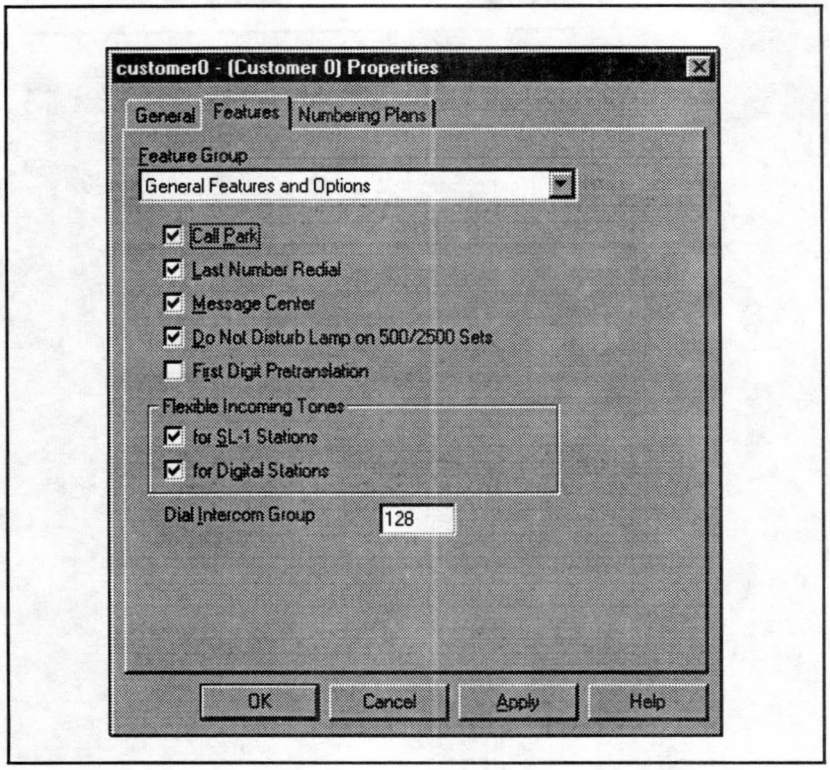
Figure 48
Customer property sheet, General tab



Note: Enter User information in the **Scheduler System ID** text box if you are using applications with scheduled activities (for example, Update System Data, System Administration/CPND, ESN, Traffic, and Call Accounting).

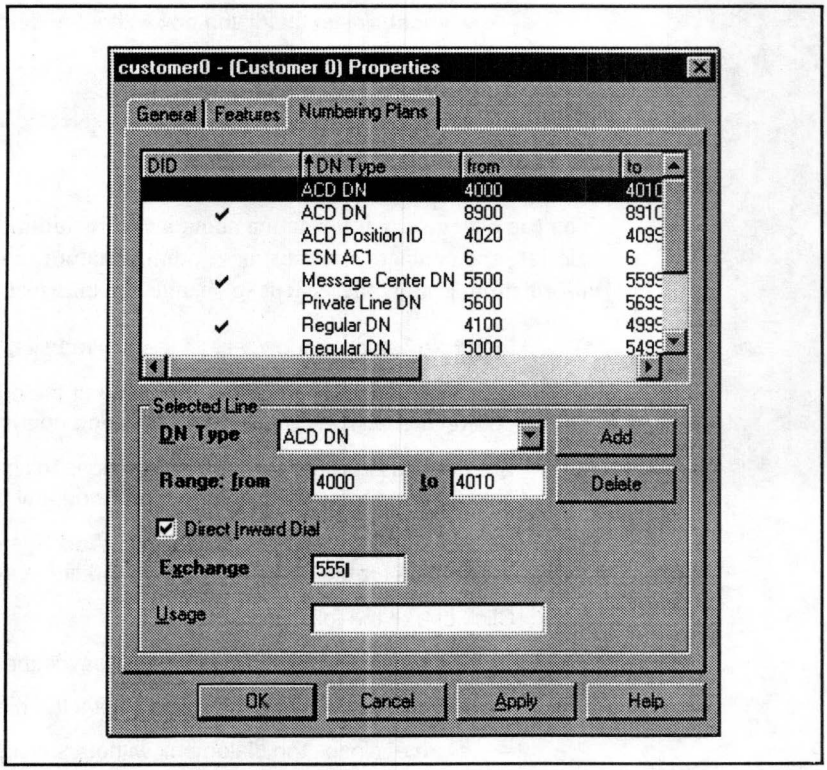
6 Select the **Features** tab, and fill in the customer information. See Figure 49.

Figure 49
Customer property sheet, Features tab



7 Select the **Numbering Plans** tab, and fill in the customer information. See Figure 50.

Figure 50
Customer property sheet, Numbering Plans tab



8 When you have completely configured a customer, click **Apply** to add the customer and leave the property sheet open so that you can add other customers, or click **OK** to add the customer and return to the System properties sheet.

9 To delete a customer, Click the **Delete** button in the System properties sheet. A delete confirmation box opens. Click **OK** to delete the customer.

To modify a customer's properties, Click the **Properties** button. The Customer property sheet opens. Modify in the customer information in the appropriate tabs, and click **OK**.

10 In the System properties sheet, click **OK**. The system is now in place.Click one of the following buttons:

- **Apply** adds the system and leaves the dialog box open
- **OK** adds the system and closes the dialog box
- **Cancel** closes the dialog box without adding the system
- **Help** provides on-line help

The new system is added to the tree under the selected site.

Changing a site

You can change any information about a site, including the site name, address, and contact. You must have administrator privileges to change site information. Follow these steps to change site information:

1 In the Navigator window, select the desired site.

2 Choose **Properties** from the **File** menu or the right mouse button pop-up menu. The **Site Properties** dialog opens to the **General** tab.

3 Bolded fields indicate required information. To change a value, editthe field. Consult the on-line help for details on any field.

4 To add a new system to this site, click **Add System**, and fill in information for the new system. See "Adding a system" on page 87.

5 Click one of the following buttons:

- **Apply** saves the information and leaves the dialog box open.
- **OK** saves the information and closes the dialog box.
- **Cancel** closes the dialog box without saving.
- **Help** provides on-line help

Changing a system

You can change any information about a system or its communications connection.

Note: You must have Administrator privileges to change any system information.

Follow these steps to change system information:

1 In the Navigator window, select the desired system.

2 Choose **Properties** from the **File** menu or the right mouse button pop-up menu. The **System Properties** window opens.

3 Select the tab containing the information you wish to change. Bolded fields indicate required information. To change a value, edit the field or select a different item from a field popup menu. An arrow within a field indicates a drop-down list of choices. Press the arrow to select from the list. Consult the on-line help for details on any field.

4 Click one of the following buttons:

- **Apply** saves the information and leaves the dialog box open
- **OK** saves the information and closes the dialog box
- **Cancel** closes the dialog box without saving
- **Help** provides on-line help

Deleting a site or system

You must have administrator privileges to delete a site or system from the Navigator window. A record of the deletion is stored in the PC event file.

WARNING

Deleting a site also deletes all of its systems.

Follow these steps to delete a site or system:

1 In the Navigator window, select the site or system.

To delete all sites and systems, select the **Sites** icon at the top of the tree.

2 Choose **Delete** from the **Edit** menu.

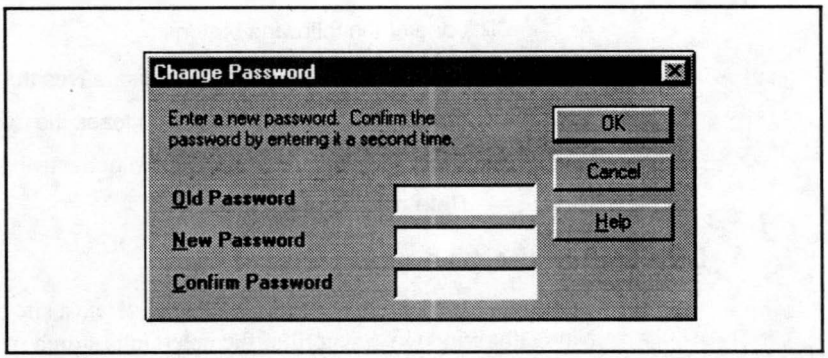
3 Click **OK** to confirm.

Changing your password

You can change your password at any time. If your password has expired, MAT prompts you to enter a new password when you attempt to log on. Follow these steps to change your password:

1 In the Navigator window, choose **Change Password** from the **Security** menu to open the **Change Password** dialog. See Figure 51.

Figure 51
Change Password dialog



2 Enter your old password in the **Old Password** field.

3 Type a new password in the **New Password** field.

4 Retype the new password in the **Confirm Password** field.

5 Click **OK**.

6 A message box informs you that the password was successfully changed. Click **OK**.

Configuring MAT Users

MAT allows you to create user *Templates* to speed the process of adding users. A template is a form that you fill in to define most aspects of a certain kind of user (a descriptive name for the class of user, their level of access to sites and systems, and automatic connection to particular systems). You can create as many user templates as you need.

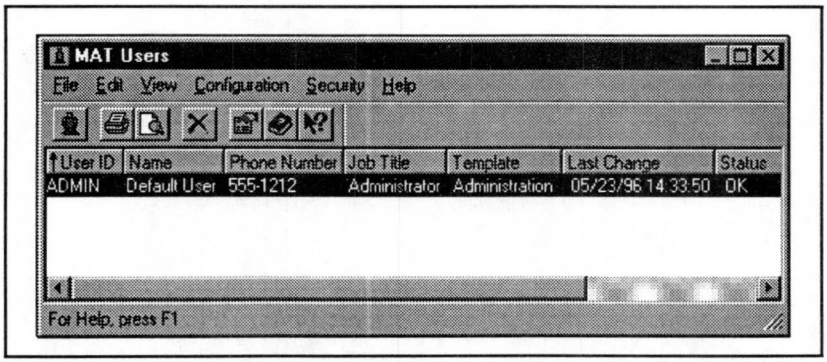
You then use the template as a basis for adding individual users to the MAT database.

Creating a User Template

1 In the Navigator window, select **MAT Users** from the **Security** menu.

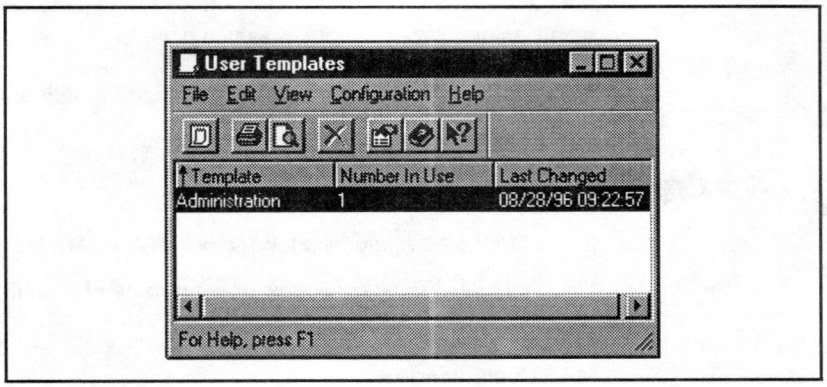
The MAT Users window appears. See Figure 52.

Figure 52
MAT Users window



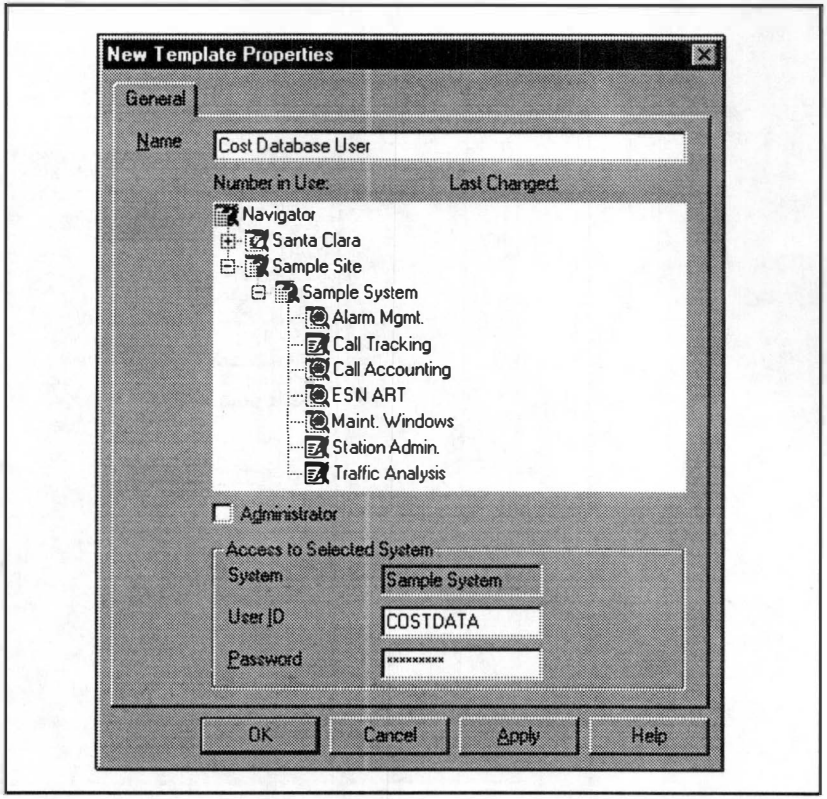
2 From the **Configuration** menu, select **Templates**. The User Templates window appears. See Figure 53.

Figure 53
User Templates window



3 From the **Configuration** menu, select **Add Template**. The New Template property sheet appears. See Figure 54.

Figure 54
New Template property sheet



4 Enter a name for this class of user. For each site and system in the tree, use the right mouse button popup menu to assign user privileges (**Read-write, Read-only, or No Access**). Select the **Administrator** box, if appropriate. The site and system icons change to reflect the access level.

5 The **User ID** and **Password** text boxes become active when you select a system. Enter values here to allow this class of user to connect to this system without having to enter User ID and Password.

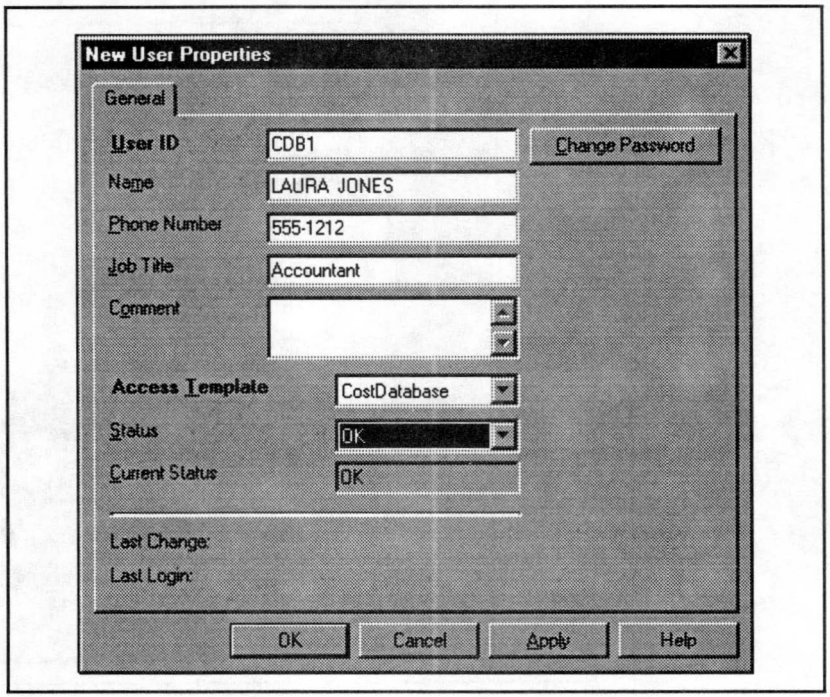
6 Click **OK**. Close the User Template window.

Creating a User

1 In the MAT Users window, select **Add User** from the Configuration menu.

The New User property sheet appears. See Figure 55.

Figure 55
New User property sheet



2 Enter a **User ID**, and from the **Access Template** drop-down list, select the template that you will use as the basis for this user definition.

3 Fill in other data as required.

4 Click the **Change Password** button to change the MAT login password for this user only.

5 Click **OK**. The new user appears in the MAT User window. Close the MAT User window.

System Terminal

System Terminal helps you perform overlay-based tasks directly through the Meridian 1 TTY interface. System Terminal provides on-line, context sensitive help with overlay prompts and error messages.

There are two versions of System Terminal to support two different connection types–Ethernet or PPP and Serial–as follows:

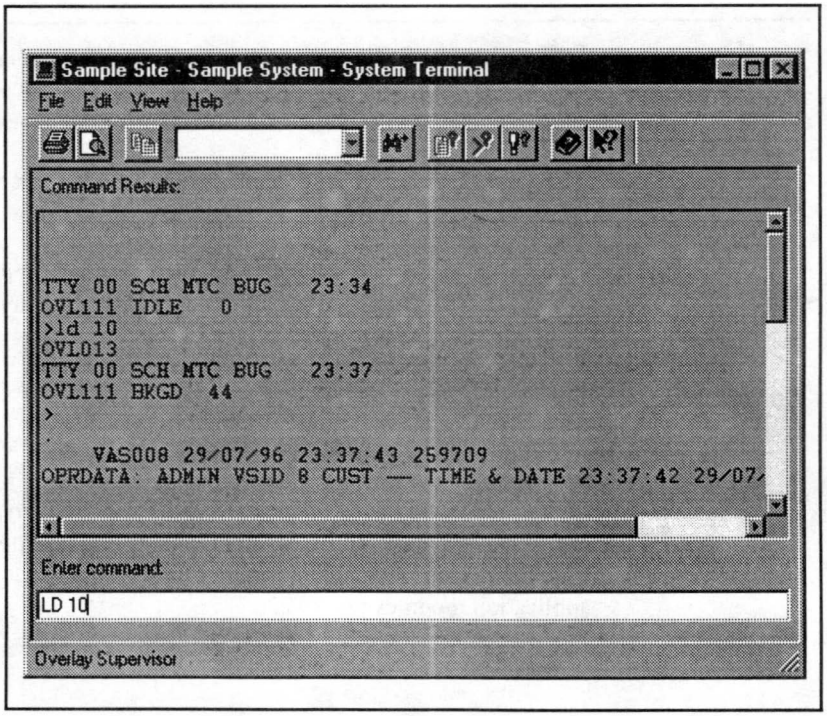
- Overlay Passthru is available on X11 release 22 and later systems connected to MAT using Ethernet or PPP. Overlay Passthrough only supports access to the overlays.
- VT220 provides similar functions for any Meridian 1 system using serial connections, as well as terminal emulation for all application modules (such as Meridian Mail). VT220 is discussed in "VT220" on page 117.

In release 22 and later switches, you access the overlays using the System Terminal (Ethernet or PPP required) and access the application modules via VT220. In pre-release 22 switches, you access both the overlays and application modules via VT220.

Launching System Terminal (Ethernet or PPP required)

Once you connect to the system of interest, launch System Terminal by selecting **System Terminal** from the **Maintenance** menu or toolbar in the System window. Enter your system user ID and password in the System Login dialog. Figure 56 shows the System Terminal window.

Figure 56
System Terminal window



The System Terminal window displays all system events as they occur. It also gives you direct access to any overlay.

Note 1: For Ethernet or PPP connections, each active System Terminal connection requires a pseudo-TTY (PTY) port. PTYs are software-only I/O ports.The System Terminal and Maintenance Windows applications use these ports to access the overlays. A message informs you if the window is not currently available.

Note 2: Ethernet and PPP are available only for Release 22 and above X11 software with package 226. See "MAT 5 Communications Requirements" on page 139.

System Terminal window

The System Terminal window includes the following:

- An **Enter Command** edit box in which you type overlay commands
- A **Command Results** list box that displays your interaction with the overlays and the results
- Links to on-line help are available for the following:
  - Help on the current overlay
  - Help on the current prompt
  - Help on the last or selected error message
  - One-line description of prompts in the status bar

You use overlays just as you did before MAT 5 was available. The one minor difference is that you type into an edit box rather than the last line of the screen as with TTY and Terminal Emulation applications. You still use the **<Enter>** key to send the typed-in data (an overlay command or response to a prompt).

Using System Terminal

You can do the following from System Terminal:

- Load an overlay as you normally would on a TTY or Terminal Emulation application
- Cut or copy system events or overlay command results to the clipboard
- Save or capture the command results to a file
- Get help on a Meridian 1 error message
- Get help on an overlay
- Get help on a prompt
- Monitor system events

Advantages over a TTY

You now have the following advantages over the old TTY:

- You can type in lower case and use the backspace key
- **Copy** and **Paste** in the **Enter** Command box (useful for repeated commands with only a TN change)
- Scroll back in the command results
- **Copy** and **Print** the command results
- Capture output to a file as well as to the screen

Getting help on the current overlay

You can get more help on the currently loaded overlay using the **Current Overlay** command in the **Help** menu. The help file is organized in a similar fashion to the *I/O Guide*.

> ***Note:*** The **Current Overlay** menu is disabled when you are not in an overlay.

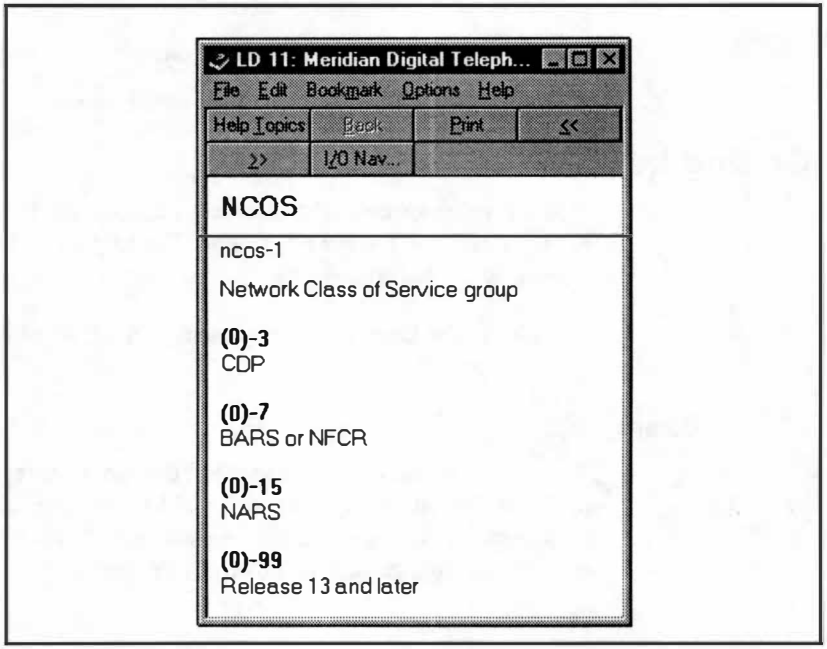
Example

If you are in overlay 10, you can select **Current Overlay** from the **Help** menu, and then navigate within help to the **CPND** prompt sequence. You can click on any prompt in the sequence. This displays the help window for that prompt–the same as help on **Current Prompt**.

Getting help on the current prompt

Figure 57 shows an example of the help you can get on an administration overlay. You load the overlay and respond to the prompts, one at a time. This help guides you as you load the overlay and respond to the prompts.

Figure 57
Current prompt help example



If an overlay is currently loaded, the Status Bar at the bottom of the window provides a short description of the current prompt.

If the one-line description is not enough, you can read a full description of the prompt in Windows Help. Choose **Current Prompt** from the Help menu.

> ***Note:*** Help on the current prompt is disabled if you are not in an administration overlay.

To get help on any other prompt choose **I/O Navigator** from the Help menu.

Getting help on an error message

System Terminal can distinguish error messages from the other text in **Command Results** list box. The **Error Message** command in the **Help** menu provides the error description in Windows Help.

You can get help on an error message in the following ways:

- Double-click an error message anywhere in the Command Results.
- Select the **Error message** command in the **Help** menu to get help on the last error message (even if it is scrolled off the screen).
- Select an error message anywhere in the Command Results, then select the **Error message** command in the **Help** menu.
- Select the **I/O Navigator** from the **Help** menu.

The error message help window appears when you select the **Error message** command in the **Help** menu.

> ***Note:*** You can also get help on Meridian Mail System Error and Event Reporting (SEER) messages using the I/O Navigator.

System Terminal Menus

The System Terminal window includes the following menus in the menu bar–keyboard shortcuts are shown after the command names:

Table 16
File menu

Command	Description
Print <Ctrl>P	Prints the command results.
Print Preview	Displays the information on the screen as it would appear in print.
Print Setup	Selects a printer and printer connection.
Save As	Saves the current set of command results to a file. This command performs a one-time save, unlike the Capture command which continues saving new command results to the file as they occur.
Capture	Captures new command results as they occur and saves them to a file.
Close	Closes the System Terminal window.

Table 17
Edit menu

Command	Description
Cut <Ctrl>X	Deletes selected text and stores it on the clipboard.
Copy <Ctrl>C	Moves a copy of selected text to the clipboard. Copy is especially useful when you need to enter many similar commands. Simply copy a command from the Command Results area and paste it in to the Enter Command field, then edit where necessary.
Paste <Ctrl>V	Inserts the clipboard contents into the Enter Command field.
Clear Command Results	Deletes all text in the Command Results area.
Select All <Ctrl>A	Selects all text in the Command Results area.

Table 18
View menu

Command	Description
Status Bar	Displays or hides the Status Bar. A check mark appears next to the command when the Status Bar is displayed.
Toolbar	Displays or hides the Toolbar. A check mark appears next to the command when the Toolbar is displayed.

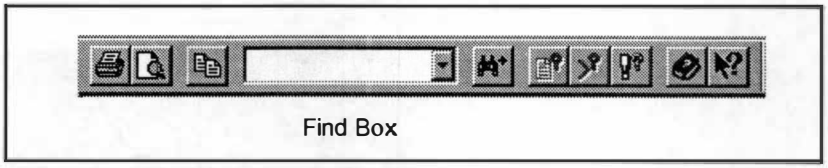
Table 19
Help menu

Command	Description
Topics	Displays an index of help topics
What's This?	Provides context-sensitive help on any pull-down menu command or toolbar button. Clicking anywhere else takes you to the first topic in the help topic list. This operation is also available in the right mouse button popup menu.
Current Overlay	Displays general help topics for the overlay that is currently loaded. For help on another overlay, use the **I/O Navigator** command in the Help menu. The **Current Overlay** command is unavailable when no overlay is currently loaded.
Current Prompt <Ctrl>Q	Displays help on the current prompt while in an administration overlay. The Status Bar also provides a short description of the current prompt.
Error Message <Ctrl>E	Displays help for the selected error message in the Command Results area or the last error message if nothing is selected.
I/O Navigator <Ctrl>G	Displays a dialog box that allows you to quickly jump to help on any overlay, prompt, command, or error message.
About System Windows	Displays version information on this release of the application.

Toolbar

The System Terminal toolbar offers several useful shortcuts to the menu commands. See Figure 58.

Figure 58
System Terminal toolbar



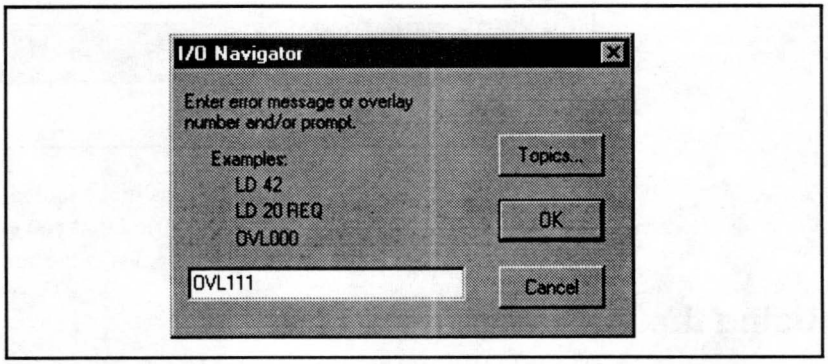
Note: The **Find** and **Find Next** icons in the toolbar allow you to search the Command Results for the text string that you enter in the **Find box**. **Find** is case-sensitive. The search begins at the current location.

Using the I/O Navigator

The I/O Navigator displays a dialog box that allows you to quickly jump to help on any overlay, prompt, command, or error message. Select **I/O Navigator** from the overlay's **Help** menu or from the **I/O Navigator** buttons in the appropriate Help files.

The I/O Navigator allows you to navigate through I/O reference help independent of your current context within the overlays. For example, you do not need to be logged into a system to look up an error message using the I/O Navigator. See Figure 59.

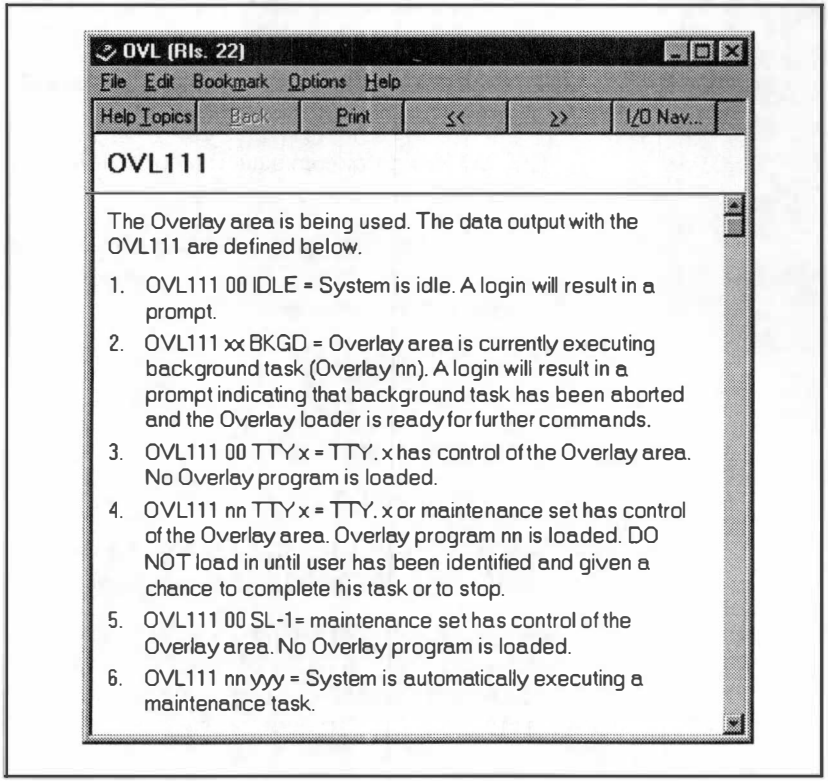
Figure 59
I/O Navigator dialog



Type the overlay number, error message number, or prompt in the text entry field and click **OK**. Help information for the specified overlay, prompt, or error message appears.

The **Topics** button displays the general reference Help index. See Figure 60.

Figure 60
Example Help Index for an Overlay



The **Cancel** button cancels a search.

Entering an overlay (LD XX) or error code mnemonic (ERR, BUG) takes you to the contents page of the appropriate help file. Entering the error code (BUG3001) or an LD number and a prompt takes you to the Help topic page.

- If the prompt or error message you specify does not exist, the help search dialog appears with the nearest match selected.
- If the overlay number or error message type do not exist, a "Help file not found" information dialog appears.
- The **I/O Navigator** command can be used from within Help. You do not need to be connected to a switch.
- There are some combination overlays (for example, one help file describes two overlays). The user can enter either of the overlay numbers. These cases are:
  - LD 36 and LD 41
  - LD 40 and LD 42
  - LD 20, LD 21, and LD 22
  - LD 84 and LD 85
- Leading zeros are not required in error messages. For example, entering SCH22 or SCH022 will find the description for SCH0022.
- To look up Meridian Mail System Error and Event Reporting (SEER) messages, enter XXXYY (where XXX is the message class, and YY is the message number–no mnemonic is required). For example, enter 11102.

VT220

The VT220 application models the VT100/220/320 series of terminals to set up communications between your PC and the Meridian 1. It supports the transfer of ASCII data during a communications session and provides normal TTY and VT220 access to overlays that are not supported by the MAT applications. For example, you might use VT220 to connect to Meridian Mail or a non-Meridian 1 system.

Features

VT220 supports the following features:

- Double-height, double-width, blinking, bold and underlined characters
- Complete graphic character set, including a special font for representing control characters
- Scrolling regions
- 80 and 132 column modes
- Echo, no echo, local mode and autowrap on/off
- Reverse video characters and reverse video screen
- Cursor types–block, underline, vertical line, or none
- Selectable cursor blink rate
- User-definable Tab stops
- Programmable function keys
- Display control mode
- National character sets

Accessing VT220

Before accessing VT220, you must first select the type of terminal emulation session you require. To do so, perform the following steps:

1 Click once on the system name in the MAT Navigator to highlight it and click **Properties** from the File drop-down menu (or simply right-click on the system name and click **Properties**).

2 From the System Properties window, click the **Communications** tab and select the desired settings file from the Terminal Emulation VT220 Settings drop-down list box (e.g., MMAIL.INI).

3 Click the **Applications** tab and click once on **System Terminal (VT220)** in the Applications list box to highlight it.

4 Select a communications profile for System Terminal (VT220) by clicking on the desired profile name in the Communications Profile drop-down list box.

5 Click OK to select these settings and return to the MAT Navigator.

To access VT220, perform the following steps:

1 From the MAT Navigator, select the desired site and system and click **System Terminal** from the Maintenance drop-down menu.

2 From the System Terminal Selection dialog which appears, click **Serial (VT220)** and click **OK**.

VT220 will attempt to connect to the terminal based on the communications criteria entered in the Site Configuration application for this system. Once it establishes this connection, the VT220 main window will appear listing the commands and graphical tools required for the emulation session. See Figure 61.

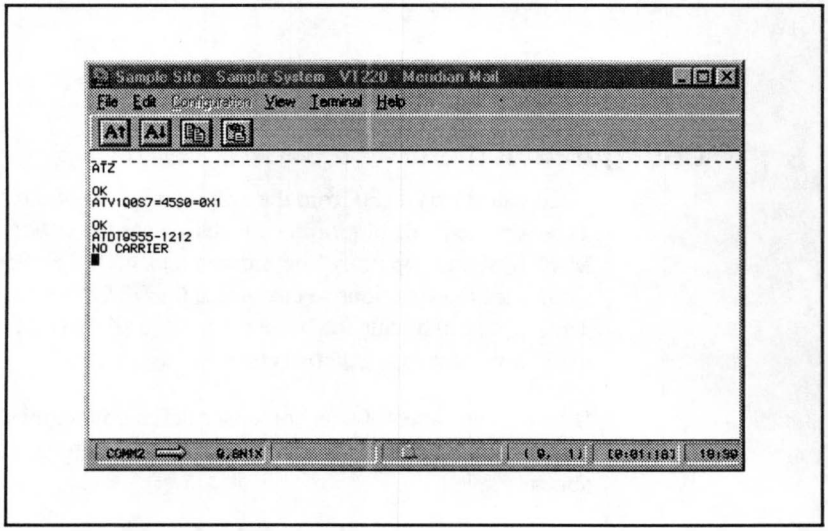
The following sections will briefly list the main functions of VT220.

File menu

The File menu contains functions used to save the VT220 configuration, print the contents of the terminal window, record and replay VT220 terminal emulation sessions and close the system.

The following is a summary of these functions:

Figure 61
VT220 window



- Save Configuration
- Save Configuration As
- Print
- Print Setup
- Printer Fonts
- Capture
- Playback
- Close

The **Save Configuration** and **Save Configuration As** menu items are only available if you have selected a user defined terminal type (as defined as the 'Other' VT220 type from the MAT System Properties Communications tab). Otherwise, they will appear grayed.

Edit menu

The Edit menu contains editing commands used to manipulate the text appearing in the main window.

The following is a summary of these functions:

- Copy
- Paste
- Select All

Configuration menu

Once you start VT220 from the system window of the MAT Navigator with a user defined type of terminal (as defined as the **Other** VT220 type from the MAT System Properties Communications tab), then you can use the Configuration functions to customize the VT220 settings to suit your needs. The purpose of having the 'Other' type is to allow you to create multiple types of settings based on generic settings.

If you do not select 'Other' or a user defined type, then you will not require these functions to run VT220. The Configuration command will therefore appear grayed.

Before you can customize the VT220 settings, you must first select the custom VT220 settings file OTHER.INI using the Communications tab from the MAT Navigator System Properties application. Refer to "Accessing VT220" on page 118 for more details on selecting this option. This file appears in the VT220 settings drop-down list box. When you launch VT220 from this customizable terminal, you can then use the commands which appear in the Configuration drop-down menu to change the settings for VT220.

Once you have edited the VT220 settings using these functions, you must then save the customized configuration file using the **Save Configuration As** command. Using this command, you can enter the name of this configuration file for use in later sessions.

VT220 includes a number of setting files which are predefined depending on the system to which you are connected. For example, M1.INI is a predefined setting file used for a VT220 terminal emulation session with the Meridian 1, and MMAIL.INI is a predefined setting file for Meridian Mail. These setting files provide the required VT220 settings and cannot be edited.

The following is a summary of the Configuration functions:

- Terminal Setup
- National Replacement Character Set
- Map Keyboard
- Program Keys
- Tab Setup
- Options
- Status Bar

View menu

The View menu contains toggles to adjust the display of the VT220 window as well as hide and display the Tool Bar, Status Bar and Keys Window.

The following is a summary of these toggles:

- Terminal
- Hide/Show Tool Bar
- Hide/Show Status Bar
- Hide/Show Keys Window

Terminal menu

The **Terminal** menu contains commands used to connect and disconnect VT220 for a temporary communications setup. The **Connect** and **Disconnect** commands start and stop the terminal emulation. The **Temporary Communication Setup** function temporarily creates a terminal emulation session based on customizable connection criteria. This setup is only temporary for the current session. When you access VT220 again, it will use the criteria defined for this system in the MAT **System Configuration** function.

The following is a summary of these commands:

- Connect
- Disconnect
- Temporary Communication Setup

Help Menu

In addition to the standard on-line help features for VT220, this **Help** menu contains topics which provide help with the Overlay Enhancer and I/O error messages.

The following is a summary of these Help items:

The **Help Topics** menu item will display the help topics for VT220 only if you have selected a user defined terminal type (as defined as the 'Other' VT220 type from the MAT System Properties Communications tab). Otherwise, it will display the help topics for the Meridian 1 system.

The **Current Overlay**, **Current Prompt** and **Error Message** menu items are only enabled if you are running a VT220 terminal emulation for the M1.INI terminal type and the system is in overlay mode.

The I/O Navigator **Help** function allows you to obtain information on specific error messages.

Keyboard Mappings

The following tables list the keyboard mappings for VT220 on standard 101 and 102 key keyboards.:

Table 20
Keyboard Mappings - VT Key

VT Key	PC Key
PF1	Num Lock
PF2	Numpad Slash
PF3	Numpad Start
PF4	Numpad Minus
Find	Insert
Insert	Home
Select	Delete
Up Arrow	Up Arrow
Down Arrow	Down Arrow
Left Arrow	Left Arrow
Right Arrow	Right Arrow
F6	F6
F7	F7
F8	F8
F9	F9
F10	F10

Table 20 (Continued)
Keyboard Mappings - VT Key

VT Key	PC Key
F11	F11
F12	F12
F13	Sys Rq
F14	Scroll Lock
Help	F2
Do	F3
F17	Ctrl-F7
F18	Ctrl-F8
F19	Ctrl-F9
F20	Ctrl-F10

Table 21
Keyboard Mappings - VT Action

VT Key	PC Key
Remove	Page Up
Next Screen	Page Down
Prev Screen	End
Hold Screen	F1
Compose	Unmapped
Delete	Backspace
Keypad Command	Numpad Plus
Keypad Enter	Numpad Enter
Break	F5
Long Break	Shift-F5
Control Break	Ctrl-F5
Print Screen	Unmapped
Keypad 0	Numpad 0
Keypad 1	Numpad 1

Table 21 (Continued)
Keyboard Mappings - VT Action

VT Key	PC Key
Keypad 2	Numpad 2
Keypad 3	Numpad 3
Keypad 4	Numpad 4
Keypad 5	Numpad 5
Keypad 6	Numpad 6
Keypad 7	Numpad 7
Keypad 8	Numpad 8
Keypad 9	Numpad 9
Keypad Minus	Ctrl-Numpad Minus
Keypad Period	Numpad Del

Table 22
Keyboard Mappings - VT Action Scroll

VT Key	PC Key
Scroll Left	Ctrl-Left Arrow
Scroll Right	Ctrl-Right Arrow
Scroll Up	Ctrl-Up Arrow
Scroll Down	Ctrl-Down Arrow

PC Event Log

The PC Event log displays recent system alarms and events. The PC Event log displays active events in a way that lets you quickly view the most important events.

Using the PC Event window

Once you open the PC Event window, you can perform the following tasks:

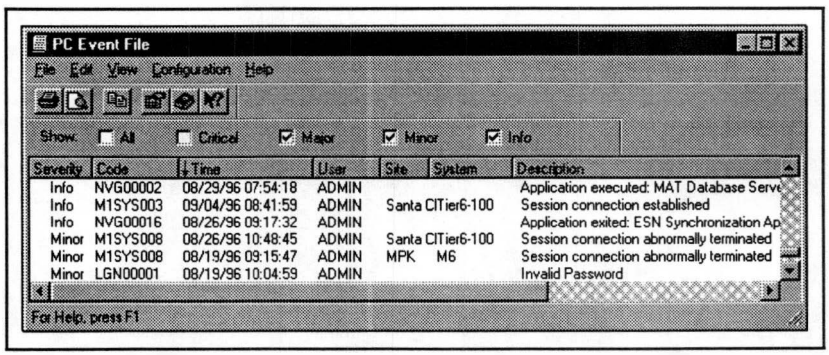
- Locate an alarm in the Event file to identify the cause of the problem
- Learn more detail about an alarm

Launching and using the PC Event window

From the **Maintenance** menu of the System window, select **PC Events**.

The PC Event window provides a list of active alarms and a menu bar from which you can learn more about the events.

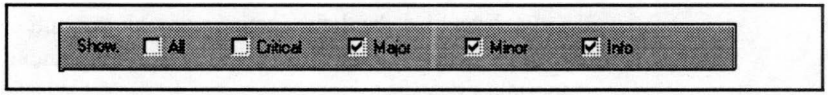
Figure 62
PC Event window



Filter toolbar checkboxes

Use the Filter toolbar to select the types of alarms or events that you wish to display in the list. Figure 63 shows the Filter toolbar. Click to check (or uncheck) an item. For example, you would check "Critical" to restrict the list to alarms that are critical. The Filter Toolbar may be dragged to the top or bottom of the window.

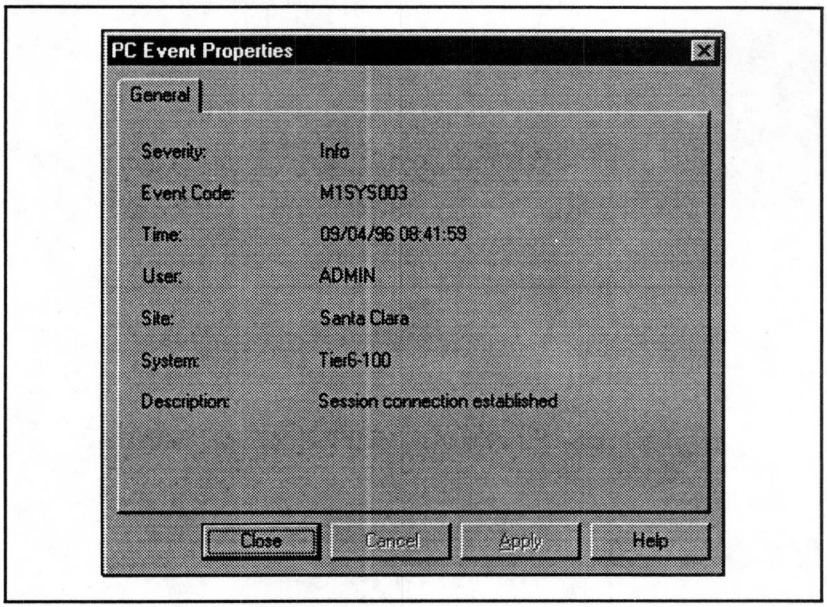
Figure 63
Filter toolbar



Learning more detail about an alarm

You can learn more about a selected alarm by choosing **Properties** in the **File** menu or clicking the **Properties** button in the popup menu.

Figure 64
PC Event Properties sheet



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Appendix A: MAT 5 PC Requirements

Use the information in this Appendix to plan your PC system configuration.

Overview

For new MAT 5 systems, NORTEL has developed a recommended PC configuration. If you are upgrading to MAT 5 and desire reasonable performance and a platform that will support future growth, upgrade your PC to the recommended PC configuration (or better) at this time.

If you are currently running or intend to run only one or two MAT applications, you may find that a lesser PC configuration *might* suit your intended purposes. For example, running MAT 5 Call Tracking as a stand-alone application may run fine on a 486 with 16 MB of RAM. The minimum PC requirements presented here are meant only to be used to estimate whether or not a customer's existing PC can be used for limited use situations.

> ***Note:*** For operation or performance-related problems escalated to Nortel's support organizations on PCs with less than 32 MB of RAM, where insufficient RAM is suspected as being a factor contributing to the problem, the customer will be required to add RAM to the MAT PC

Recommended PC Configuration

An IBM PC™ or compatible (Intel Pentium™ 75 MHz (or faster) microprocessor) with:

- 32MB memory (see "Memory Requirements" on page 134).
- 3.5 inch, 1.44MB diskette drive
- 1 GB hard disk (500 MB free space recommended)
- Microsoft Windows ® 95 (including dial-up Networking)
- Microsoft TCP/IP installed
- Network communications hardware, as follows:
  - Ethernet Network Interface card (NIC) if you plan to use Ethernet network communications
  - Ethernet transceiver (if required for the NIC) that match your cabling and network type
  - Hayes-compatible modem for serial or PPP communications
- Microsoft Dial-up Networking (if using PPP communications)
- Serial port using 16550 UART technology
- Parallel printer port
- Hardware security dongle (provided by NORTEL)
- SVGA graphics monitor with interface card
- Windows-compatible mouse
- A printer must be configured, even though it is not required to be physically attached to the PC.

Minimum Hardware and Software Requirements

The following minimum PC hardware and software is required to run MAT 5 (for specific limited use configurations):

An IBM compatible 486 or Pentium PC with:

- Minimum clock rate of 66 Megahertz
- 16 MB or more of RAM (see "Memory Requirements" on page 134)

  Note: For operation or performance-related problems escalated to Nortel's support organizations on PCs with less than 32 MB of RAM, where insufficient RAM is suspected as being a factor contributing to the problem, the customer will be required to add RAM to the MAT PC
- 500 MB free space on Hard Disk (see section on disk space requirements)
- Minimum (1) 3 1/2-inch 1.44MB floppy disk drive
- Microsoft Windows 95 (including dial-up Networking and Microsoft TCP/IP)
- Hayes compatible modem (9.6 KBS minimum) is optional for connection to remote sites, required for polling configurations (14.4 KBPS recommended).
- Ethernet Network Interface Card (required only for Ethernet connectivity)
- Parallel printer port
- VGA graphics monitor with interface card, SVGA recommended
- Windows compatible mouse

CPU

If a system running MAT 5 is to remain in a steady state over an extended period of time (that is applications not being started or stopped), a slower 486 processor would be acceptable (as compared to the recommended Pentium processor). However, as interactivity increases (that is launching applications, opening multiple windows), so should the CPU speed of the system hosting the MAT 5 software. A 120 MHz Pentium/32 MB should be able to support management of up to three simultaneous systems with medium levels of interactivity.

Once enough memory is present to minimize virtual memory paging and swapping, runtime performance is almost constant across processor types. Increasing RAM has more impact on MAT application performance than increasing CPU speed. It should be noted that application load and initialization time increases by three times on a 66 MHz 486 system as compared to a 120 MHz Pentium system.

CPU speed can be a factor for MAT 5 Call Tracking in high volume call environments. Where peak call volume is 5000+ call records per hour, a Pentium processor would be recommended. Where peak call volume is 10,000+ call records per hour, a dedicated Pentium PC running only the MAT Call Tracking application would be recommended.

Memory Requirements

Windows 95 virtual memory allows applications to utilize disk space to satisfy application program memory needs. Virtual memory paging and swapping *does* impact system performance. With MAT, the first instance of an application being launched from the navigator uses more virtual memory than the second and subsequent instances. For example, launching a second Maintenance window for a second site does not require as much memory as the first instance, as some of the required resources have been previously loaded.

Virtual memory "Rule of Thumb" - Virtual memory utilization in excess of three times physical memory (RAM) will begin to reduce performance significantly.

Examples of MAT 5 Virtual Memory Usage

This section presents some examples of MAT 5 Virtual memory usage for launched applications using selected configurations:

Administration Package:

Station Administration, Traffic Analysis, Call Accounting, Call Tracking

First instance of Administration Package:

- 59 MB total virtual memory (includes Windows 95 usage)
- 30 MB virtual memory (MAT 5 only)

Second and subsequent instances of Administration Package:

- 6 MB additional virtual memory (each instance)

Maintenance Package:

ESN Analysis and Reporting, Maintenance Windows, Alarm Management

First instance of Maintenance Package:

- 64 MB total virtual memory (includes Windows 95 usage)
- 35 MB virtual memory (MAT 5 only)

Second and subsequent instances of Maintenance Package:

- 15 MB additional virtual memory (each instance)

System Management Package:

Administration Package plus the Maintenance Package

First instance of System Management Package:

- 69 MB total virtual memory (includes Windows 95 usage)
- 40 MB virtual memory (MAT 5 only)

Second and subsequent instances of System Management Package:

- 18 MB additional virtual memory (each instance)

Additional Packages

Maintenance Package plus the Station Administration

- Same as Maintenance Package + *1.25* MB of virtual memory (each instance)

Traffic Analysis & Call Accounting

First instance of Traffic Analysis & Call Accounting:

- *53* MB total virtual memory (includes Windows 95 usage)
- *25* MB virtual memory (MAT 5 only)

Second and subsequent instances of Traffic Analysis & Call Accounting

- 6 MB additional virtual memory (each instance)

Administration Package plus the ESN Analysis and Reporting

- Same as Administration Package + 6 MB of virtual memory (each instance)

Memory Calculation Examples:

Example 1: A customer is upgrading from MAT 4 to MAT 5 without adding any new applications.

This corresponds to the *Administration Package* applications listed above. The customer's current PC is a Pentium and has 16 MB of RAM. The customer anticipates running no more than two applications simultaneously but does not wish to risk experiencing performance degradation from insufficient RAM. 59 MB for the First instance + 6 MB for the second instance = 65 MB Virtual RAM. Using the "3 times physical RAM" rule of thumb, 65 MB / 3 = 21.7 MB RAM. Although the customer could probably get by with an upgrade to 24 MB of RAM, the customer decides to upgrade to the recommended 32 MB of RAM to allow for future growth.

Example 2: A customer is upgrading from MAT 4 to MAT 5 and plans to add the Maintenance Package applications.

The customer's current PC is a 486 and has 8 MB of RAM. The customer anticipates monitoring 3 systems concurrently. 64 MB (First system) + 15 MB (second system) + 15 MB (3rd system) = 94 MB Virtual RAM. Using the "3 times physical RAM" rule of thumb, 94 MB / 3 = 31.3 MB RAM. As this customer also anticipates future growth, the customer decides to purchase a new Pentium PC meeting the recommended system requirements at this time.

Example 3: A customer wishes to install MAT Traffic and Call Accounting only and has an existing 486 75 MHz PC with 16 MB RAM.

The customer will have scheduled traffic and call accounting data collections and is not concerned about performance degradation as long as all tasks are completed automatically. The MAT PC will be collecting data from 2 systems. 53 MB (First system) + 6 MB (second system) = 59 MB Virtual RAM. Using the "3 times physical RAM" rule of thumb, 59 MB / 3 = 20 MB RAM. The customer decides to go ahead and operate the MAT system with only 16 MB of RAM even though some reduction in system performance is expected.

Hard drive requirements

You can approximate hard drive capacity requirements for MAT applications using Figure 65.

Figure 65
Disk Storage Requirements

MAT Application	Program Store	Site Data Store
Common Services (required)	37 MB	negligible
Station	1.5 MB	1.3 MB per 1,000 stations
Traffic	5 MB	Switch dependent: Typically 2.5 to 9 MB per month for each site's traffic data
Call Accounting	2.5 MB	1.6 MB per 10,000 records
Call Tracking	3 MB	negligible
ESN	6 MB	Switch dependent: allow 1 MB per customer
Maintenance Windows	1 MB	negligible
Alarm Management	1.3 MB	negligible

Using virtual memory requires additional hard disk space. An additional 100 MB (minimum) of hard disk space must be reserved for MAT virtual memory usage.

Disk fragmentation can occur as hard drive use nears capacity. Disk fragmentation can slow operation and also increases wear on the drive leading to shorter life span. It is recommended that larger capacity hard disk drive is used when calculations indicate that hard disk space required is near the capacity of a drive.

Appendix B: MAT 5 Communications Requirements

X11 Releases Required for various MAT Applications

The following chart outlines the available MAT applications and the X11 software and connection types supported.

Table 23
X11 Releases Required for various MAT Applications

MAT Application	X11 Release Supported								Connection Type
	14	16	17	18[a]	19	20	21	22	
Maintenance Windows								☑	Ethernet/ PPP
Alarm Management								☑	Ethernet/ PPP
System Terminal:									
— Overlay Passthru								☑	Ethernet/ PPP
— VT220	☑	☑	☑	☑	☑	☑	☑	☑	Serial
ESN ART	☑	☑	☑	☑	☑	☑	☑	☑	Ethernet/PPP/ Serial
Station Administration	☑	☑	☑	☑	☑	☑	☑	☑	Ethernet/ Serial
Traffic Analysis	☑	☑	☑	☑	☑	☑	☑	☑	Ethernet/ Serial[b]
Call Accounting	☑	☑	☑	☑	☑	☑	☑	☑	Serial
Call Tracking	☑	☑	☑	☑	☑	☑	☑	☑	Serial

a. X11 Release 18 is supported on Option 11 systems only.
b. Only serial connection is supported if traf c is being collected from a buffer box.

Systems equipped with IOP Cards

For Meridian 1 systems equipped with IOP cards the minimum supported vintage is NT6D63BA Release. 01

X11 Software Packages Required

The following packages are required for each of the applications listed:

Table 24
X11 Software Packages Required

Application	X11 Software Packages Required
Alarm Management	164, 242, 243 and 296
Maintenance Windows	164, 242, 243 and 296
System Terminal - Overlay Passthru	164, 242 and 296
Ethernet Connection for Station Administration, Traffic Analysis and ESN ART)	164, 242 and 296

Appendix C: Running MAT 5 Over a Network

Before installing MAT 5 on a network, review the installation procedures outlined in "Configuring Your MAT 5 System" on page 34.

There are two types of network installations:

- Install the MAT applications on the client PC–this increases access speed to the MAT applications.
- Install the MAT applications on the server–this saves hard drive space on the client PCs.

  Note: Common Data will always be installed to the server for either of the network installations. Each MAT PC must have identical MAT applications in order to install MAT on the network.

Running MAT in a server environment provides multi-user access to the MAT applications and data files.

Before installing MAT on a server each client PC must be given read/write privileges to the server directory where MAT will be installed. Then each user must be mapped to the server using the same drive letter (for example **M**) which will allow users to login from multiple client PCs.

The MAT 5 Setup program supports installation from a file server if the disk images of the MAT installation diskettes are copied to the file server. Setup then runs from the network drive. Copy the contents of each MAT disk to a subdirectory on a network drive. Each disk should be identified with the disk number (that is, create the subdirectory **Disk1** (no spaces) for the contents of disk number 1). Ensure the network drive and subdirectories can be accessed by all the client PCs that will have access to MAT.

Based on your requirements choose the type of network installation and follow the steps outlined below.

Installing the MAT Applications on the Client PC

1. For the first client PC, choose **Install/Upgrade** from the Setup Choices in the MAT Setup application, which is now located on the network in the Disk1 subdirectory.
2. Setup prompts you for a serial number and key code.
3. Setup will ask for the destination drive and path for the Application Executables, Common Data and Local Data directories. Choose the destinations drive and path for each directory as follows:

   — Application Executables: Local PC Drive (C:\Nortel)

   — Common Data: Shared Network Drive (M:\Nortel, for example)

   — Local Data: Local PC Drive (default C:\Nortel)

   To choose a shared network drive use the browse button to choose the drive and directory where MAT will be installed.
4. To install additional client PCs, run the MAT 5 Setup program and choose **Run from Network** from the Setup Choices.
5. Setup will ask for the location of already installed applications executables. Choose the local drive where you would like to install the applications (default is C:\Nortel). Setup will then ask if you want to create the directory and install the application executables. Choose **Yes** to continue.
6. Setup will ask for the location of already installed Common Data. Click on the browse key and choose the shared drive and directory where MAT Common Data was originally installed (M:\Nortel, for example).
7. Setup will ask for the destination drive and path for Local Data (default is C:\Nortel).
8. Setup will display the serial number and key code. Click next to continue.
9. Select the applications that you wish to install. Install the same set of applications on each client PC. To restrict access to an application, define the access rights to the applications when configuring MAT Users.

Upgrading the MAT Applications on the Client PC

Follow the procedures outlined in "Upgrading Your License or Adding Applications" on page 149 at the PC originally used to install MAT. At each client PC, run the MAT 5 Setup program and choose **Run from Network** from the Setup Choices.

> *Note:* If you are upgrading to a new release of MAT, each client PC must be upgraded before accessing MAT.

Uninstalling the MAT Applications on the client PC

If you choose to uninstall an application from a client PC, the application will be removed from the client PC. All remaining clients will still have access to this application.

If you choose to uninstall an application from the PC that originally installed MAT, this application will be uninstalled from the server. The remaining clients will no longer be able to access the application. If this application is still required from the remaining clients, run the MAT 5 Setup application on the PC that originally installed MAT and reinstall the application. Once the application is reinstalled, all remaining clients will have access to this application.

Installing the MAT Applications on the Server

The MAT applications are installed on the server during the installation of the first client PC.

1. For the first client PC, choose **Install/Upgrade** from the Setup Choices in the MAT Setup application, which is now located on the network in the Disk1 subdirectory.
2. Setup prompts you for a serial number and key code.
3. Setup will ask for the destination drive and path for the Application Executables, Common Data and Local Data directories. Choose the destinations drive and path for each directory as follows:
   - Application Executables: Shared Network Drive (M:\Nortel, for example)

— Common Data: Shared Network Drive (M:\Nortel, for example)

— Local Data: Local PC Drive (default C:\Nortel)

To choose a shared network drive use the browse button to choose the drive and directories where MAT will be installed.

4 To install additional client PCs, run the MAT 5 Setup program and choose **Run from Network** from the Setup Choices. This sets up the PC to run from the network copy.

5 Setup will ask for the location of already installed application executables. Click on the browse key and choose the shared drive and directory where the MAT application executables were originally installed (M:\Nortel, for example).

6 Setup will ask for the location of already installed Common Data. Click on the **Browse** key and choose the shared drive and directory where MAT Common Data was originally installed (M:\Nortel, for example).

7 Setup will ask for the destination drive and path for Local Data (default is C:\Nortel).

8 Setup will display the serial number and key code. Click **Next** to continue.

9 Select the applications that you wish to install. Install the same set of applications on each client PC. To restrict access to an application, define the access rights to the applications when configuring MAT Users.

Upgrading the MAT Applications on a Server

Follow the procedures outlined in "Upgrading Your License or Adding Applications" on page 149 at the PC originally used to install MAT. At each client PC, run the MAT 5 Setup program and choose **Run from Network** from the Setup Choices.

Note: If upgrading to a new release of MAT, each client PC must be upgraded before accessing MAT.

Uninstalling the MAT Applications on a Server

If you choose to uninstall an application from a client PC, the links at the client PC for this application will be removed. The application will not be removed from the server and all remaining clients will still have access to this application.

If you choose to uninstall an application from the PC that originally installed MAT, this application will be uninstalled from the server. The remaining clients will no longer be able to access the application. If this application is still required from the remaining clients, run the MAT 5 Setup application on the PC that originally installed MAT and reinstall the application. Once the application is reinstalled, all remaining clients will have access to this application.

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Appendix D: Installing a MAT 5 Software Upgrade

Follow this procedure to upgrade an existing MAT 5 installation:

1 Stop any running MAT applications. Close all MAT applications and exit MAT with no background tasks.

2 Restart the computer, and allow Windows 95 to start.

3 Insert MAT diskette 1 in the diskette drive.

4 Click the Windows **Start** button and select **Run.**

The Run dialog box appears.

5 In the listbox, enter **a:\setup** (where a: is the diskette drive).

This starts the Installation Wizard. The Wizard takes a few moments to load.

The Wizard presents the Licensing Agreement for your approval.

6 When you have read the agreement, and feel that you wish to continue, click **Yes.**

WARNING

Clicking **No** means that you do not wish to adhere to the provisions of the license. The installation procedure stops, and no software is added to the PC.

7 The Wizard presents the Welcome window.

8 The Wizard presents the Identification window.

9 The Wizard presents the Setup Choices window.

10 The Wizard presents the Licensing Agreement for your approval.

When you have read the agreement, and feel that you wish to continue, click **Yes**.

WARNING

Clicking **No** means that you do not wish to adhere to the provisions of the license. The installation procedure stops, and no software is added to the PC.

11 The Wizard presents the serial number and key code window.

The software serial number is a unique number generated when the software is manufactured. The serial number must match with the serial number of the hardware dongle attached to the PC. The Wizard verifies that the software serial number and dongle serial number match before it continues with the installation.

Your keycode identifies which MAT applications and licensing options (for example, how many Meridian 1 systems) you purchased. The Wizard allows you to install all applications permitted by the keycode.

The keycode and serial number together identify the software components that the Wizard is authorized to install.

Confirm the packages that you purchased and enter the serial number and keycode. Click **Next**.

12 The paths for the following MAT files are displayed as read-only text:

— MAT executable files

— MAT data files that can be shared on a network (for example, Site/System data)

— MAT data files that have to be local to a PC (for example, PC Event Log)

WARNING

You must uninstall MAT if you wish to change these paths after installation.

13 Select the applications to be installed, reinstalled, or upgraded.

The installation Wizard checks the installation environment (disk space, compatibility, and so on). If there is insufficient space, you can exit the Setup program or reduce the number of applications to be installed.

The Installation Wizard copies the files to the appropriate directories on the destination drive.

14 If you are installing a new MAT application, the MAT configuration file is updated so that the application is registered with the MAT Navigator.

If MAT is being installed on a PC with previous MAT applications, you have the option to convert the database from the older release and delete the older application(s) and database.

The Wizard displays progress indicators to show you how the installation is proceeding.

Upgrading Your License or Adding Applications

After you have installed and used MAT 5, you may wish to increase the number of Meridian 1 systems in use, or add new MAT applications. You accomplish this simply by purchasing and entering a new keycode, as follows:

1 Stop any running MAT applications. Close all MAT applications and exit MAT with no background tasks.

2 Restart the computer, and allow Windows 95 to start.

3 Insert MAT diskette 1 in the diskette drive.

4 Click the Windows **Start** button and select **Run**.

The Run dialog box appears.

5 In the listbox, enter **a:\setup** (where a: is the diskette drive).

This starts the Installation Wizard. The Wizard takes a few moments to load.

6 The Wizard presents the serial number and key code window.

The keycode and serial number together identify the software components that the Wizard is authorized to install.

7 Enter the serial number and new keycode. Confirm the packages that you purchased. Click **Next**.

The Wizard reconfigures your MAT installation to allow the new sites or MAT applications.

Note: Following installation, you can view the installed applications, licenses, and serial numbers. From the Navigator **Help** menu, select **About MAT Applications**.

Appendix E: Script File Summary

This appendix contains a list of all of the script files used for the MAT applications. A script is a pre-written program which contains a set of commands and functions required to perform specific activities. Some scripts are defined for specific PC and Meridian 1 configurations and are therefore selected based on each user's configuration. Most MAT scripts, however, are defined for the general operation of the MAT applications and are therefore automatically selected to perform specific functions within MAT.

Common Services scripts

The following script files are used by the MAT Common Services applications. They are automatically selected whenever you run MAT and apply to all of the MAT applications as a whole. You do not need to select these script files to perform a required function.

HAYESMDM.SCR	Functional script used by Common Services applications (except for Call Accounting and Call Tracking) for connection with Hayes compatible modems
CUSTMDM.SCR	Functional script used by Common Services applications (except for Call Accounting and Call Tracking) for connection with customized modems
M1MODEM.SCR	Functional support script used to access far-end equipment (e.g., dispatcher modems)
ERROR.SCR	Functional script required for error handling

Traffic Analysis scripts

The script files used by MAT Traffic Analysis provide the main functions required for traffic data collection and report generation. The data collection script files are selected when you enter your Meridian 1 and communications parameters. The report generation script files are automatically selected when you generate reports.

Real time traffic data collection

The following script files are used for real time traffic data collection (no buffer unit). They will be automatically selected when you set up this site for real time traffic data collection (from the MAT Site Configuration application).

LD2.SCR	Main traffic data collection scripts
LD2INI.SCR	Functional script used by LD2.SCR (used to initialize Meridian 1 to have collection performed hourly)
LOGSL1.SCR	Functional script used by LD2.SCR

Traffic data collection from MDR-2000

The following script files are used for traffic data collection from an MDR-2000 buffer unit. They will be automatically selected when you set up this site for traffic data collection through the MDR-2000 buffer unit (from the MAT Site Configuration application).

M2K.SCR	Main traffic data collection script
M2KINI.SCR	Functional script used by M2K.SCR (used to initialize Meridian 1 to have collection performed hourly in pass-through mode)

Traffic data collection from PollCat II

The following script file is used for traffic data collection from a PollCat II buffer unit. It will be automatically selected when you set up this site for traffic data collection using the PollCat II buffer unit (from the MAT Site Configuration application).

POLL.SCR	Main traffic data collection script

Traffic data collection from AT1/AT2

The following script files are used for traffic data collection from the AT1 and AT2 buffer units. They will be automatically selected when you set up this site for traffic data collection using the AT1 or AT2 buffer units (from the MAT Site Configuration application).

TSB1.SCR	Main traffic data collection script for AT1 buffer unit
TSB2.SCR	Main traffic data collection script for AT2 buffer unit

Traffic Analysis report generation

The following script files are used for report generation. They are automatically selected when you generate Traffic Analysis reports.

AUXPLK.SCR	AVGSOA.SCR	CALPRK.SCR	CBKQUE.SCR
CONSOL.SCR	CSAML1.SCR	CSAML2.SCR	CSAML3.SCR
CSAML4.SCR	CSAML5.SCR	CSAML6.SCR	CSAMLK.SCR
CUSCON.SCR	DCHANL.SCR	DTDLAY.SCR	DTNSPD.SCR
FEAKEY.SCR	GLOBAL.SCR	GLPCCS.SCR	GLPTRF.SCR
GMSGAP.SCR	GNTLPS.SCR	GOHQUE.SCR	GPCLTB.SCR
GPROCL.SCR	GROUTL.SCR	GSUTRF.SCR	GTRNKS.SCR
ICONSL.SCR	IMTCHL.SCR	INPMSG.SCR	INTRKG.SCR
ISDNPD.SCR	ISDNPM.SCR	ISDNPT.SCR	JCTRAF.SCR
JCTRGP.SCR	LPTRAF.SCR	MSGATQ.SCR	NCOSVC.SCR
NETLPS.SCR	NETWKS.SCR	NTATSV.SCR	OHKOVT.SCR
OHKQUE.SCR	OMTCHL.SCR	OUTMSG.SCR	PCTLTB.SCR
PRADIO.SCR	PROCLD.SCR	RADPAG.SCR	RTLREQ.SCR
TRVQUE.SCR	SELTRM.SCR	SLTRAF.SCR	SRADIO.SCR
SVCLPS.SCR	TMESSG.SCR	TRUNKS.SCR	TSETST.SCR
WATCON.SCR	WPRCLD.SCR	WTRNKS.SCR	

The following script files are used for the Data Parser as part of the report generation process. They are automatically selected when processing data for Traffic Analysis reports.

TFC000.SCR	TFC001.SCR	TFC002.SCR	TFC003.SCR
TFC004.SCR	TFC005.SCR	TFC007.SCR	TFC008.SCR

TFC10X.SCR	TFN001.SCR	TFN002.SCR	TFN101.SCR
TFS000.SCR	TFS001.SCR	TFS002.SCR	TFS003.SCR
TFS004.SCR	TFS005.SCR	TFS007.SCR	TFS007.SCR
TFS008.SCR	TFS009.SCR	TFS101.SCR	TFS102.SCR
TFS105.SCR	TFS41X.SCR	TRAFFIC.SCR	TRFCDR.SCR
TRFCUS.SCR	TRFSYS.SCR		

Call Accounting & Call Tracking scripts

The following script files are shared by Call Accounting and Call Tracking to perform data collection and real time monitoring. The script files which are used for data collection are automatically selected when you enter your configuration parameters in the MAT Site Configuration application. As you define the SDI values in MAT Site Configuration, the appropriate script will be selected to match that option. When you then select an SDI value from the Call Accounting or Call Tracking Communications Database function, each defined script will be selected accordingly.

For example, if you define SDI1 to have real time CDR data collection performed from it, then SDI1 will be configured to run the real time CDR data collection scripts SL1.SCR and SL1LOGIN.SCR.

If you are collecting CDR data from a data file (e.g., if you select the File option from the Call Accounting or Call Tracking Communications Database), then you can select the filename from which you will collect the CDR data and then select a script filename for that particular format of CDR data.

For example, if you select a file for data collection which contains normalized CDR data, then you would select the script file COLLECT.SCR.

Real time CDR data collection

The following script files are used for real time CDR data collection from the Meridian 1. They will be automatically selected when you set up this site for real time CDR data collection (from the MAT Site Configuration application).

SL1.SCR	Real Time CDR data collection script (no buffer unit required)
SL1LOGIN.SCR	Functional script used by SL1.SCR

CDR data collection from MDR-2000

The following script files are used for data collection from an MDR-2000 buffer unit. Depending on the option selected in the MAT Site Configuration application, only one of the following script files will be selected for data collection.

COLLECT.SCR	Data collection script for MDR-2000 for normalized CDR (erases contents of buffer)
2000FD.SCR	Real time CDR data collection script through MDR-2000 to produce normalized CDR data (data is not stored in buffer)

CDR data collection from PollCat II

The following script files are used for data collection from a PollCat II buffer unit. They will be automatically selected when you set up this site for CDR data collection from a PollCat II buffer unit (from the MAT Site Configuration application).

POLLCDR.SCR	CDR data collection script for PollCat II buffer unit
PARSESL1.SCR	Functional script used by POLLCDR.SCR script file

CDR data collection from AT1/AT2

The following script files are used for data collection from TSB's AT1 and AT2 buffer units. Depending on the option selected in the MAT Site Configuration application, either the AT1CDR.SCR or AT2CDR.SCR script file will be used for data collection.

AT1CDR.SCR	CDR data collection script for TSB's AT1 buffer unit
AT2CDR.SCR	CDR data collection script for TSB's AT2 buffer unit
PARSESL1.SCR	Functional script used by POLLCDR.SCR, AT1CDR.SCR and AT2CDR.SCR script files

Call Tracking alarm scripts

The following script files are used for Call Tracking alarms. They will be automatically selected when you define the Call Tracking alarms.

CMALARM.SCR	Call Tracking alarm script
CMPAGER.SCR	Call Tracking alarm pager script

CDR data collection modem scripts

The following script files are supporting function scripts used by all CDR data collection scripts for Call Accounting and Call Tracking. The appropriate script will be automatically used when you select Hayes or Custom as the format for the modem for CDR data collection from the MAT Site Configuration application. If you enter custom modem information when setting up a site, then the custom modem script file will be updated with the appropriate parameters.

HAYES.SCR	Functional script used by all CDR data collection scripts in Call Accounting and Call Tracking for connection with Hayes compatible modems
CUSTOM.SCR	Functional script used by all CDR data collection scripts in Call Accounting and Call Tracking for connection with customized modems (will be updated with the appropriate parameters)

Script usage table

The following table lists the types of scripts which would be selected for different scenarios for Call Accounting and Call Tracking. These represent the main scripts which can be selected to suit a particular scenario. All other scripts will automatically selected depending on these script selections

Table E-1
Script usage table

To	Use
Perform real time CDR data collection from Meridian 1	SL1.SCR
Collect CDR data from MDR-2000 buffer unit	COLLECT.SCR
Collect CDR data from PollCat II buffer unit	POLLCDR.SCR
Collect CDR data from AT1 buffer unit	AT1CDR.SCR
Collect CDR data from AT2 buffer unit	AT2CDR.SCR

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Meridian Administration Tools

MAT Common Services

User guide

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Meridian Administration Tools

MAT Station Administration

User Guide

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Introduction

The Meridian Administration Tools (MAT) provide the Meridian 1 system administrator with powerful tools for maintaining and updating the Meridian 1 system. The MAT system consists of MAT Common Services and several MAT applications, each of which provides specific system management capabilities. This *User Guide* describes the MAT Station Administration application.

Overview

The Station Administration application helps administer databases that define end-user stations (telephones) on Northern Telecom Meridian 1 systems. The Station Administration application contains the following modules:

Station Administration

This module allows you to change station data on an individual or selected group basis.

CPND

This module allows you to manage Call Party Name Display (CPND) data.

Report Generator

This module allows you to create and produce standard or customized reports.

Conversion Utility

This module provides import and file rebuild capabilities.

Communications

This module synchronizes MAT and Meridian 1 data (copies MAT data to Meridian 1 or copies Meridian 1 data to MAT).

MAT Users

The MAT system is designed for managers of telecommunications equipment and authorized Northern Telecom distributors. This guide is intended for users who have a working knowledge of Meridian 1 systems and general telecommunications concepts.

This guide assumes you are familiar with PC systems and the Microsoft Windows™ environment. You should be familiar with the Windows environment before attempting to use the MAT system.

Conventions used in this manual

This manual uses the following terms:

— *Computer system* refers to the hardware and software of an IBM-PC™ or 100% IBM compatible PC.

— *Disk* refers to a high capacity hard disk, required by the MAT system.

— *Windows* refers to Microsoft Windows™ 95.

— *Mouse* refers to any standard PC pointing device. Common mouse actions include *point, click,* and *double-click*.

— Standard Windows terminology includes *icon, window, dialog box,* and *menu*.

This manual uses the following typographical conventions:

— Angle brackets denote a single keyboard key. For example, <Esc> denotes the Escape key, labeled Esc on PC keyboards. A series of angle brackets denote keyboard keys to use simultaneously. For example, <Ctrl><Alt><Del> denotes the key sequence for rebooting a PC.

— **This font** is used to designate menu selections, buttons, and commands to enter.

Station Administration

Before using MAT Station Administration, you must install and configure the software. Refer to *MAT Common Services User Guide* for installation instructions.

Overview

MAT Station Administration supports creation, maintenance, change, and reporting of single and multi-line station data and Call Party Name Display (CPND) information. Station data defines the setup for each user (telephone) connected to the Meridian 1 system.

Station data can be collected from the Meridian 1 system, or can be created within MAT. You can change this data within MAT and upload it to update the Meridian 1 database.

Each system has a number of stations. You can set up each station individually. In practice, many stations will have features in common. All features of any station can be set individually, or in groups with common criteria. The Station Administration module lets you create many stations with identical features using templates. However, those features that can be considered unique for a station (such as DN, TN, name, and location) are accessible through a dialog that graphically represents the appearance of the instrument at that station. All other features are accessible from this dialog through function buttons.

Station Data Considerations

You should be aware of the following considerations when operating the Station Administration module:

Location

The MAT application uses one field (Location) in the station database to identify and index a station record. Station data records are stored and retrieved by the value in this field. Since this is the primary identifier for a station within MAT, each station must be assigned a unique Location value. A new station cannot be created in MAT until you assign a unique Location value. Furthermore, Location is the only station record field that is required by MAT—see "DES" below. MAT validates this field during data entry and will not allow non-unique values or no value.

The Location field is not stored in the Meridian 1 system. Data retrieved from Meridian 1 containing stations not currently defined in MAT will have the fully qualified Terminal Number field value (with dashes for separators instead of blanks) assigned to the Location field. You can edit this value to conform with your Location value rules.

DES

The DES field is a required field for station data residing on the Meridian 1. It is possible to create station data within MAT that has no DES field value (This 1-6 character designator value can be assigned through the Administration feature of the Features function in Station Administration). In such cases, MAT attempts to assign the first 6 characters of the Location value to DES. If this value contains non-alphanumeric values MAT leaves the DES field blank (Location can contain all Windows-acceptable characters, but DES can have only letters and numbers).

Any station with no DES value will cause an error during transmission of MAT data to the Meridian 1. The Validation utility checks the DES and any other field values that can cause transmission failures. Refer to "Station Data Validation" on page 29.

Meridian 1 station data retrieved from a system will always have a DES value.

Sync Status

The Station list includes the current Synchronization status. Values include:

— **NEW**: a station that has been created on MAT but not yet transmitted to the Meridian 1 system.

— **TRN**: a station that has been synchronized with the Meridian 1 system. The MAT software has determined that the version of this station in the MAT PC database is consistent with the version of this station on the Meridian 1 system.

— **CHG**, or **RPL**: a station that has been changed (or marked for replacement) on the Meridian 1 system. The MAT system has determined that the station has been updated on the MAT PC database and that the version on the Meridian 1 system does not yet reflect the MAT update activity.

— **OUT**: a station that has been marked for deletion on the MAT PC database. It will not be deleted from the MAT PC database until the station has been OUTed (deleted) on the Meridian 1 system during a Synchronization/Transmit operation. A MAT user may update a station marked **OUT**. The MAT system will ask whether the station is to be restored before allowing you to update the station.

The MAT **Delete** or **Cut** operation works slightly differently depending on the station's synchronization status. A station marked **NEW** can be deleted immediately from the MAT PC database, since it has not been configured on the Meridian 1 system. A station with any other status is marked **OUT**, since the station must be OUTed on the Meridian 1 system before the station may actually be deleted from the MAT PC database. A station marked **OUT** will continue to appear in the list of stations until it has been successfully OUTed from the Meridian 1 system. A station with a status of **OUT** on the MAT PC database on which you apply **Edit - Cut** or **Edit - Delete** will continue to be marked **OUT** until it has been successfully synchronized.

Synchronization Considerations

If the Station Administration module is in Maintenance mode (set from **Options - Mode** in Station Administration module), you are prompted to schedule data transmission to Meridian 1 when any modifications are made to the data stored in MAT.

You can schedule synchronization when prompted, or schedule later.

Reports and Text Files

All log report activity is performed, by default, in the current working directory for the System (the system subdirectory in your PC system). Other reports are sent to the PC directory of your choice. Here is a list of text files with the appropriate extension found in the working directory:

— Report Forms (*filename*.FRM)

— Reports (*filename*.TXT)

— Validation Data (you provide the extension)

— Designation Strips (you provide the extension)

— Communications Logs (*filename*.LOG)

You need only supply the *filename* when prompted to save these files—MAT automatically supplies the appropriate extension.

Parsing Retrieved Data

Meridian 1 data retrieval is actually a two-stage task. MAT first retrieves the data to a file in the system subdirectory, then parses the file to conform with the MAT database rules.

The switch connection is only required during the retrieval stage. If you are connected to the switch through a modem, MAT will disconnect the modem immediately after the retrieval and before the parse. The parsing takes place on the PC only. If you interrupt the parse, for example by turning off or rebooting the PC, it can be restarted by using **Synchronization Retrieve - Parse Only**.

Multi-Tenant

If the TENA package is equipped, you must supply a tenant number (TEN).

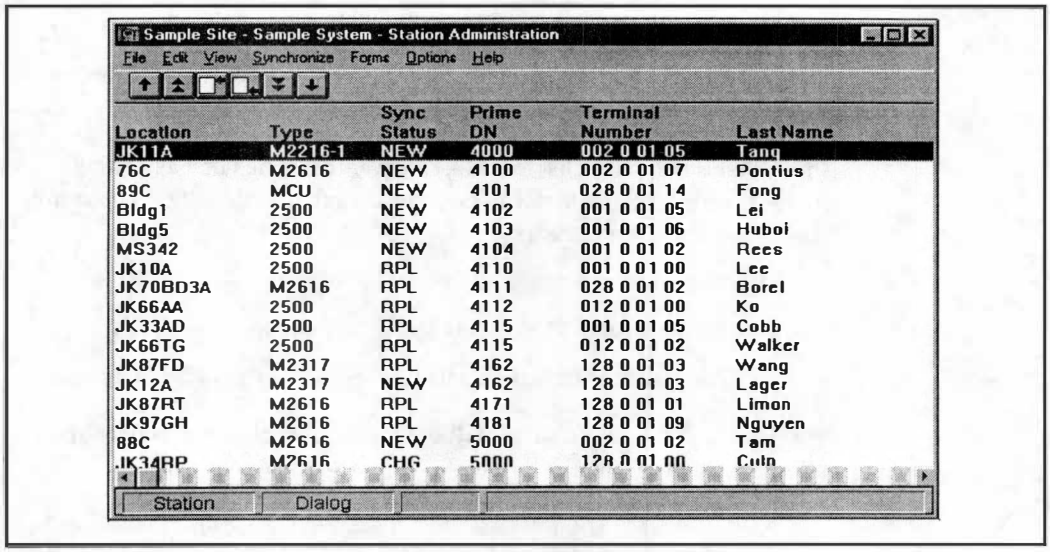
System Hardware

During station data retrieval, the system hardware information is updated with cards that will support the type of stations being retrieved. This might not actually match the hardware used (although it will be compatible). If an exact match is required, you must manually update the hardware data in the Station Hardware view.

Station Administration window

When you start Station Administration, the MAT Station Administration window opens, allowing access to station data for a single Meridian 1 system. Here is the MAT Station Administration window as first displayed:

Figure 1
Station Administration window



Location	Type	Sync Status	Prime DN	Terminal Number	Last Name
JK11A	M2216-1	NEW	4000	002 0 01 05	Tang
76C	M2616	NEW	4100	002 0 01 07	Pontius
89C	MCU	NEW	4101	028 0 01 14	Fong
Bldg1	2500	NEW	4102	001 0 01 05	Lei
Bldg5	2500	NEW	4103	001 0 01 06	Huboi
MS342	2500	NEW	4104	001 0 01 02	Rees
JK10A	2500	RPL	4110	001 0 01 00	Lee
JK70BD3A	M2616	RPL	4111	028 0 01 02	Borel
JK66AA	2500	RPL	4112	012 0 01 00	Ko
JK33AD	2500	RPL	4115	001 0 01 05	Cobb
JK66TG	2500	RPL	4115	012 0 01 02	Walker
JK87FD	M2317	RPL	4162	128 0 01 03	Wang
JK12A	M2317	NEW	4162	128 0 01 03	Lager
JK87RT	M2616	RPL	4171	128 0 01 01	Limon
JK97GH	M2616	RPL	4181	128 0 01 09	Nguyen
88C	M2616	NEW	5000	002 0 01 02	Tam
JK34RP	M2616	CHG	5000	128 0 01 00	Culp

The MAT security system allows the system administrator to make functions available on a user-by-user basis. Those menu items that are not available to you are shown dimmed. The menu bar contains the following drop-down menus:

— File

— Edit

— View

— Synchronize

— Forms

— Options

— Help

File Menu

Use the **File** menu to access the station data of a selected system.

Reports: Lets you design and generate reports based on existing station data. This item includes the Report Generator and two existing reports, as follows:

— Bridges: a list of bridges on the system

— Multiple appearances: a list of multiple-appearance stations

Desig. Strip: Sends data for labeling buttons and keys on an instrument to a MAT viewer where you can browse and print the data.

Print: Sends the station list to a MAT viewer (described in "Generating Reports" on page 83) where you can browse and print the data. Choose from the following display formats:

— **Short Format**: one-page abbreviated list of station data

— **By Feature Group**: station data by Feature Group

— **By Field Mnemonic**: station data by Meridian 1 field mnemonic

Validate: Validates field values (all or partial, selectable in a submenu) for selected station records:

— **Partial**: checks station records that, if incorrect, can cause a transmission failure during synchronization

— **Full**: checks all station records

Conversion Utility: Launches the conversion utility, used to update MAT data. For more information, see the Conversion Utility chapter.

Close: Closes Station Administration and returns to the Meridian Administration Tools window. MAT automatically saves station updates as they are made. This means that you need not close an open system before quitting the application.

Edit Menu

Use the **Edit** menu to change data within an open system. Refer to the *Common Services User Guide* for details on **Undo** and **Cut/Copy/Paste**. The MAT-specific actions include:

Add / Delete / Update: Adds/removes/modifies stations for the currently open system.

Global Update / Select / Select All: Allows you to modify selected fields in a group of selected stations.

User Field Names: Assigns names for the 10 user-defined fields for the current system.

View Menu

Use the **View** menu to choose the station data parameters you wish to view. The currently selected view is indicated by a check-mark against the menu selection and is displayed in the status bar of the main window.

Station: This option displays a list of all stations defined for this system. When you choose an Edit function, the highlighted station record is opened. If none are defined, you can only choose **Edit - Add.**

Template: This option accesses templates that contain station definitions that the open system may use frequently.

Hardware: This option displays line cards used in the system.

Sort: This option only appears when the Station view is selected. The list can be sorted by a criterion selected from a submenu that appears when you choose this item. The criteria include:

— Name

— Directory Number

— Location

— Terminal Number

— Instrument (telephone) Type

— Sync Status

Note: Sorting only affects the displayed list. It does not change the actual order of the station records within the database.

Synchronize Menu

Use the **Synchronize** menu to schedule communications with the Meridian 1 system. The Synchronize menu lets you set up reception or transmission of station data using the MAT communications functions. See "Communicating with Meridian 1" on page 59.

Retrieve: Allows selection of station data for retrieval from the Meridian 1 system into the station database. You can define criteria to select stations for download from the Meridian 1 system. Retrieve also allows a Parse Only option that formats retrieved data for MAT.

Transmit: Allows selection of station data for transmission to Meridian 1.

Forms Menu

Use the **Forms** menu to configure form-based station administration.

Forms Interface: Enable or disable form-based station administration.

Select Form: Select which form to be used by form-based station administration.

Edit Custom Form: Run the station form editor.

Options Menu

Use the **Options** menu to configure options which affect the operation of the Station Administration and CPND Administration modules.

Mode: Invoke the mode function to configure the operational mode and optional station data validations.

Help Menu

Use the **Help** menu to display documentation to help you understand and use the application.

Contents: Displays the Contents page of the on-line documentation system.

Search Help On: Allows you to type in key words and select a topic of interest from the list of Help topics.

How to Use Help: Provides basic instructions about using the on-line documentation system.

About MAT: Displays copyright and version information about the current release of the MAT Station Administration application.

Accessing Station Data

Choose **View - Station** to display the list of stations defined for the system. Each line in the list contains the following information for one station. Refer to "Managing Station Data" on page 17 for a more complete description of these fields.

Location: A unique station identifier. MAT uses the value here as an index to the station.

Type: The instrument defined for the station.

Sync Status: An indication of whether Meridian 1 data and the data in MAT are synchronized. The following list defines the synchronization status for station data:

- **NEW**: A station defined in MAT that has never been uploaded to the Meridian 1.
- **TRN**: The station is synchronized with the Meridian 1.
- **CHG**: The station has been modified in MAT but not in Meridian 1.
- **RPL**: A station defined in MAT to replace synchronized station data.
- **OUT**: A synchronized station deleted from MAT but not yet from the Meridian 1.

Prime DN: The prime directory number.

Terminal Number: The station terminal number, representing the address within the Meridian 1 system (Loop # - Shelf # - Card # - Unit#).

Last/First Name: The station user's name.

Department: The department in which the station is used.

This represents part of the data record for a station so that you can identify that station in the listing. The rest of the station data is available as described in "Managing Station Data" on page 17.

The Template View

Choose **View - Template** to display a list of station templates defined for the system. The list contains the same information for a template as the Station view contains for a station. The value of the Location field in the list is the actual name of the template as displayed in the template list field of the Add Station dialog.

The Hardware View

Choose **View - Hardware** to display a list of line cards, for station TN assignment. If Hardware Validation is active, then the TN added to each set will be validated against the TN card type. The cards defined under the hardware view are also used for automatic TN assignment.

New Stations

You can add new stations to the list in the Station Administration view. Use a template that defines data for the station or stations that you are adding, or add each station individually. You must give each new station a unique Location field value.

If MAT is in Maintenance mode, you are prompted to schedule communication with Meridian 1 whenever you add new stations in MAT. You can synchronize the system data now, schedule a time for synchronization, or cancel the prompt and schedule synchronization later. See "Communicating with Meridian 1" on page 59.)

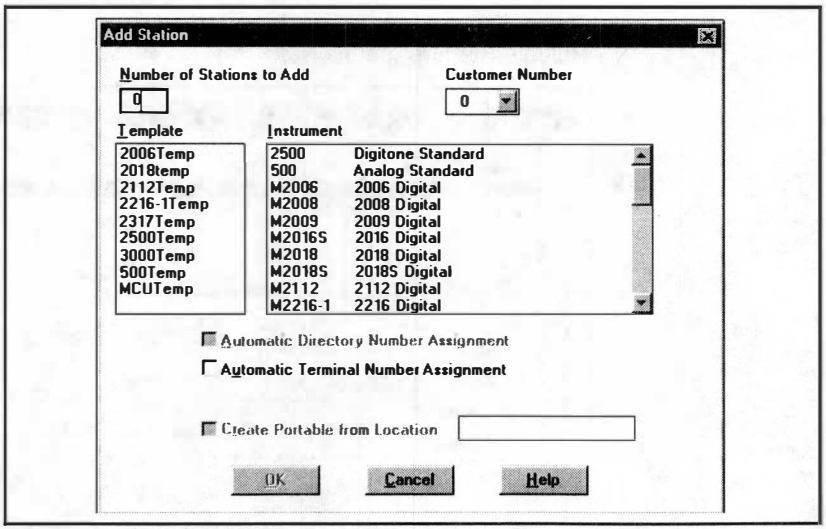
Station Template

Data that is common to many stations can be stored in a template. In a single operation, using a template, you can define multiple stations which have data in common. The only data that must be added to stations defined with a template is the Location field value, so that each station added using the template can be identified in the list and by the Station Administration module. A template can contain all or part of a station definition and stations defined using templates can be changed in the same way as stations defined individually. You can change template data in exactly the same way as station data.

Add Stations

To add new stations, choose **Edit - Add** from the Station Administration window Station view. The Add Station dialog appears.

Figure 2
Add Station dialog



Note: The Instrument field and the Template field are mutually exclusive. An instrument would be defined in the template. If an instrument is selected, there can be no selected template.

At any time, you can click **Cancel** to return to the Station list window without adding stations.

When the data for this dialog is complete, click **OK** to display one of the two dialogs below.

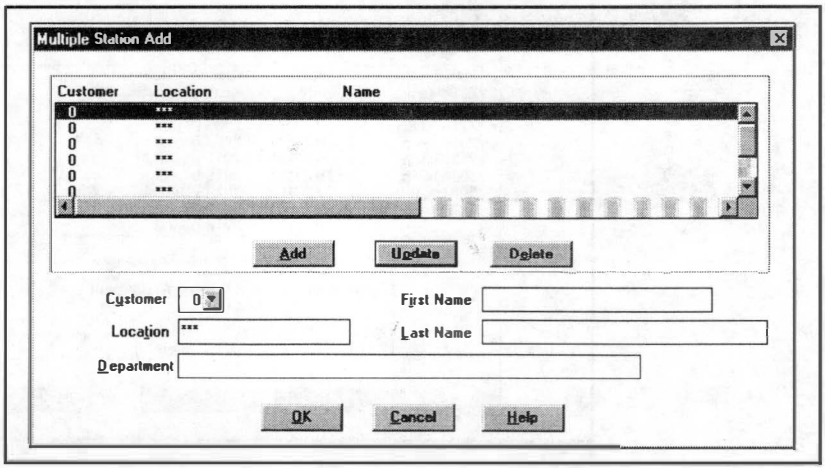
Adding a Single Station

If you are adding a single station, the dialog for the selected set is displayed. You can update the station data now or just give it a unique identifier in the Location field and click **OK** to accept the current data and update later if required (see "Managing Station Data" on page 17).

Adding Multiple Stations

If you are adding more than one station, the Multiple Station Add dialog is displayed. This dialog lets you define some aspects of each station to be added. If you used a template for station definition, much of the station data may already be defined.

Figure 3
Multiple Station Add dialog



The dialog contains an updatable list box containing the stations. The following data fields allow you to define or update the stations in the list.

Adding the Stations

When you have defined the station or stations that you wish to add, click **OK** in the dialog. If the Location field for one or more of the stations is not unique, an error box appears. Click **OK** in the error box to return to the previous dialog to make the correction.

MAT adds the accepted station or stations to the MAT station database. If the MAT is in maintenance mode you are prompted, in a Synchronization dialog, to set up communication with the Meridian 1 system. See "Communicating with Meridian 1" on page 59.

Click **Cancel** in the Synchronization dialog to return to the Station Administration list. The new stations are added with a status of **NEW**. In this case, you can use the **Synchronize** menu at a more convenient time to set up communications.

Deleting Stations

You can select stations for deletion from the Station list view. Use one of the following methods to remove them from the MAT database:

— Use the **Delete** key

— Choose **Edit - Delete**

— Choose **Edit - Cut**

Each method displays a **Yes/ No** confirmation prompt before removing the stations. If you click **Yes**, MAT removes the stations from the MAT station database.

There are special considerations to bear in mind when deleting stations that contain references to Voice Mailbox directory numbers. Refer to "Voice Mailbox" on page 39 for more information.

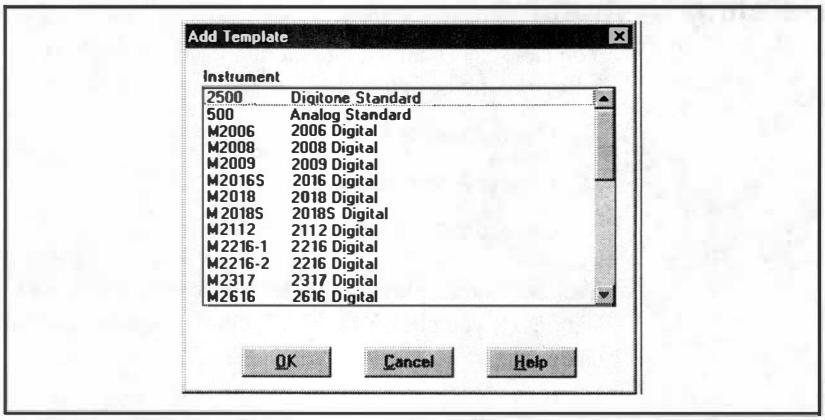
If the stations to be deleted have never been synchronized with Meridian 1 (Sync status is **NEW**) they are removed from the list in the window. In this case you can bring the stations back by choosing **Edit - Undo Delete**. This undelete is only available until you perform another edit function on the station list.

If the Sync status is not **NEW**, deleted stations are marked for deletion from Meridian 1 at sync time by setting the sync status to **OUT**. These stations will not be deleted from the list until synchronization. If you attempt to change such stations, you are prompted to bring them back before the update can be performed. If you do bring them back, the status is set to **CHG**. Attempts to delete stations with sync status **OUT** are ignored.

Adding a Station Template

You can use a template of station data to add multiple stations (or a single station) with common data. To create a template, choose **Edit - Add** in the Station Administration list view window with the **View - Template** option selected. This displays an Add Template dialog containing a list of instruments (telephone types) that you can use with this particular system.

Figure 4
Add Template dialog



Select an instrument you wish to use for this template and click **OK** to display the dialog for the instrument. You can change the data in this template as if it were a regular station (see "Managing Station Data" on page 17).

You are still required to insert a unique identifier in the Location field before the template is accepted. The data entered is used by MAT as the template name (displayed in the Add Station dialog).

If you wish to modify an existing template, proceed as if it were a single station. Choose **Edit - Update** in the Station Administration window with **View - Template** selected.

Managing Station Data

MAT displays individual station data in a dialog that graphically represents the set used at that station. If the set has push-button function ability, these are displayed and can be selected like all other fields. Some data entry fields (those that use DN or TN data, for example) can be double-clicked to display options for that field.

Data change is described for a typical set (M2616). Most other instruments contain a subset of the data for this instrument, and the update procedure for each field and function is the same as that described here.

Whenever you modify station data that has already been synchronized with the switch, the Sync Status for that station is set to **CHG**. This is an indication that MAT and Meridian 1 are not in sync.

If MAT is in maintenance mode, you are prompted to set up communication with the Meridian 1 system. You can synchronize the data at this time, schedule a time for synchronization or cancel the prompt and schedule synchronization later. See "Communicating with Meridian 1" on page 59.

Updating Stations

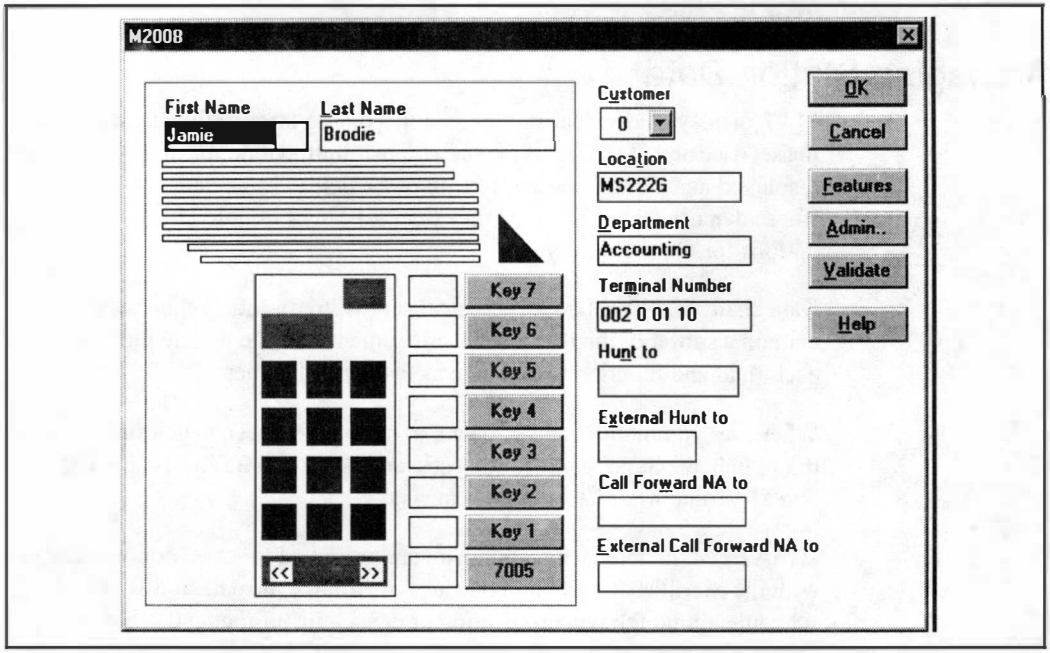
MAT displays a list of stations for the selected system in the Station Administration module when you choose **View - Station**. You can update the data for any station by selecting the desired station and choosing **Edit - Update**. This displays the dialog for the set that the station currently uses. You can update multiple stations at one time. See "Global Update" on page 45.

Station Data

Typically, the dialog associated with a particular set will contain a subset of the data fields and functions listed here for the M2616 set.

In addition to the normal **OK**, **Cancel** and **Help** functions, the set dialog can have other function buttons such as **Features** and **Admin**. These functions are described in "Features Button" on page 23 and "Administration" on page 26, respectively.

Figure 5
Station Data dialog



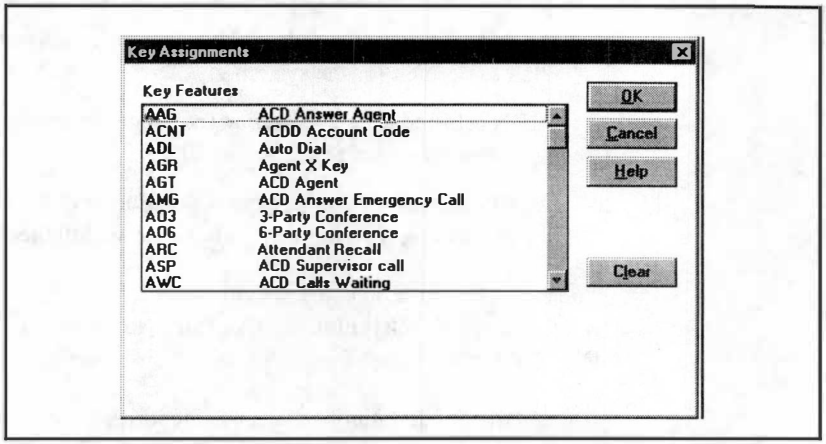
The dialog shown above is for an "M" series digital set. Functions and options assignment is described in "Key Assignments" on page 19. An additional Key Features Edit field is displayed for analog sets to allow you to assign key functions. This field is described in "Key Features" on page 25.

For sets that do not have keys or key lamps, the available features assignment dialog is displayed within the set dialog itself. The assignment procedure is as described in "Key Assignments" on page 19.

Key Assignments

In addition to the data fields, the set may have keys to which you can attach feature functions. When you select a key, a Key Assignments dialog containing a single-selection scrollable list of Key Features is displayed. The features listed are defined for this set using the Features button on the instrument dialog. Refer to "Station Features" lists in the Appendix to this document.

Figure 6
Key Assignments dialog



In addition to the usual **OK**, **Cancel** and **Help** function buttons, the dialog has a **Clear** button that you can use to remove any feature attached to the selected key on the set (to assign a different feature, it is not necessary to first clear the current feature). You may also enter the first letter of the Key Feature of interest to move to that section in the list.

The dialog contains a single-selection Key Features list. The currently selected feature is highlighted. Select using the mouse or the up/down arrow keys.

Click **Cancel** at any time to return to the set dialog without changing the current key assignment. Click **OK** to assign the selected feature to the key.

Some of the features require you to enter additional information. When you select one of these, text entry boxes are displayed in the dialog. You can double-click on a DN text entry box to display the list of DNs in the customer's Numbering Plan that are available to the selected feature (see "Directory Number Assignment" on page 20).

Directory Number Assignment

There are three kinds of DNs:

1 A DN assigned to the station. This must be in the customer's Numbering Plan as defined for the system.

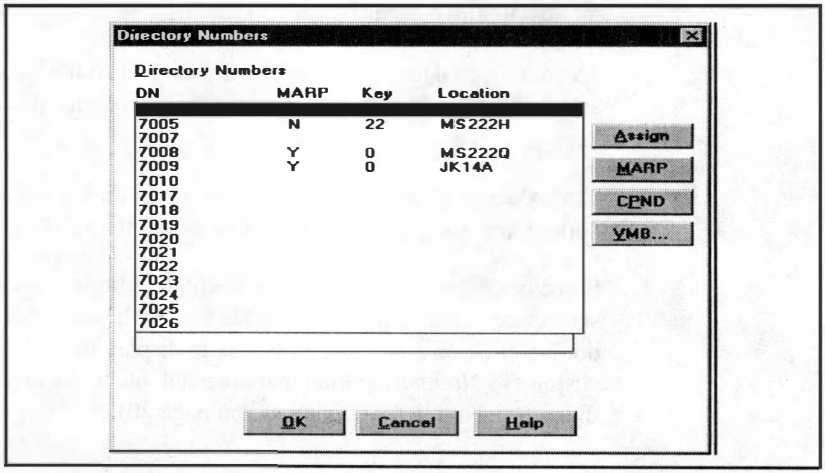
2 A DN referred to by this station (message center, for example) that must be in this customer's Numbering Plan.

3 A DN referred to by this station (Call Forward, for example) that can be the number for any station—external or within the Numbering Plan.

To enter a DN for a selected station, you can type the number into the DN field or double-click within the Directory Number field to display a list of DNs used in the Numbering Plan for the customer.

A manually entered number for DN categories 1 and 2 above will not be accepted if it is not contained in the Numbering Plan, unless the Numbering Plan validation has been turned off (**Option - Mode**).

Figure 7
Directory Numbers dialog



If you are assigning a DN to this station (versus referring to the DN of another station as in forwarding or hunting options) the dialog allows functions in addition to the usual **Cancel**, **Help** and **OK** buttons:

— **Assign**: assigns the highlighted DN to the key.

— **MARP**: If the assigned DN is being used by another station you can assign incoming calls to that DN to this station with the MARP button. To assign incoming calls to the other station, you must update the other station and select the MARP function here. This button toggles the current MARP assignment.

— **CPND**: A CPND display dialog allows you to define how calls from this station are displayed to the receiving station. See "CPND Data Considerations" on page 31.

— **VMB**: A VMB display dialog allows data associated with a DN (which serves as a mailbox ID) rather than a TN. You can modify the VMB data from any station which has an appearance of the mailbox DN. Refer to "Voice Mailbox" on page 39.

The dialog contains a single-selection list of DNs defined in the numbering plan for this system. Those numbers that are already assigned also have MARP and Location data listed. The currently selected number is highlighted. If you are assigning a DN to this station, the dialog also contains a display-only box with the current DN assignment entered.

At any time, click **Cancel** to return to the previous window without changing the current assignment. Click **OK** to assign the DN and return to the previous window.

Terminal Number Assignment

The Terminal Number (TN) is the full hardware address of the port to which this station is attached. If the Terminal Number field requires an entry, you can type the number into the Terminal Number field or you can double click within the field and select from a list of available TNs. The data entry must be in the format:

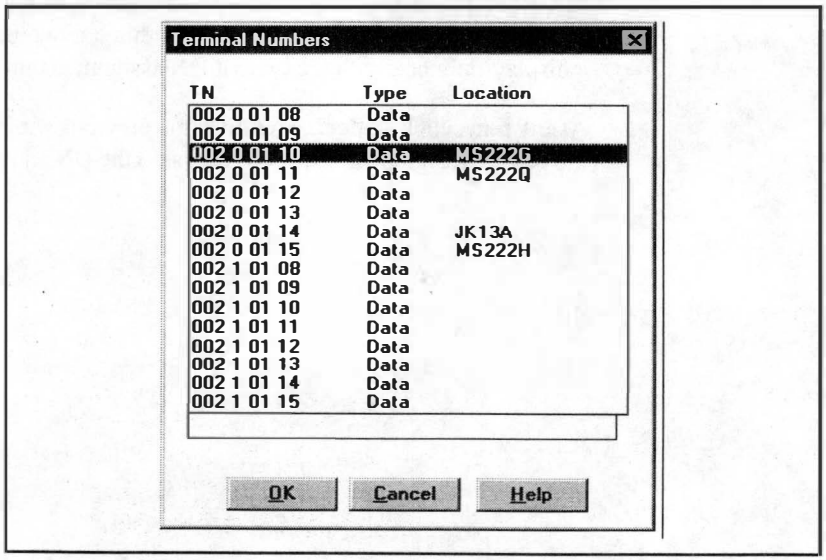
lll s cc nn

Where:
lll = The number of the Meridian 1 loop.
s = The number of the system shelf.
cc = The number of the shelf card position.
nn = The number of the card circuit (port).

The range of numbers available depends on the hardware configuration and software release in use at the system.

The list shows the Location for all TNs that are already assigned.

Figure 8
Terminal Numbers dialog



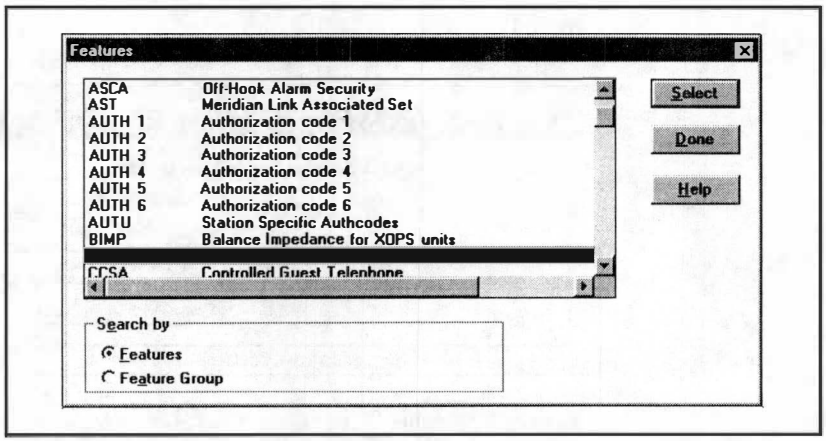
The dialog contains a single-selection list of TNs defined in the Station Hardware view that permit access to the set defined for this station. The current selection is highlighted.

At any time, click **Cancel** to return to the previous window (Set dialog) without changing the current assignment. Select a TN and click **OK** to assign the TN and return to the set dialog. The MAT system validates the TN for availability and permissibility using the Hardware assignments stored under the Station Hardware view, and assigns the TN.

Features Button

The **Features** button on the set dialog lets you examine and update station features and options defined for your system. The **Features** button displays a list box containing a single-selection scrollable list of Features or Feature Groups. The definitive list of features and groups is listed in "Feature Groups and MNEMONICS" on page 157.

Figure 9
Features dialog



You can choose to sort by either Features or Feature Groups by choosing the appropriate radio button. "Features" sorts the feature alphabetically by Meridian 1 mnemonic. "Feature Groups" organizes the features into related categories.

The dialog contains **Select**, **Done** and **Help** function buttons. **Help** displays on-line help for this dialog. **Done** returns to the set dialog and **Select** displays a dialog associated with the selected feature that lets you define appropriate parameters for that feature, and perhaps assign the feature to a key.

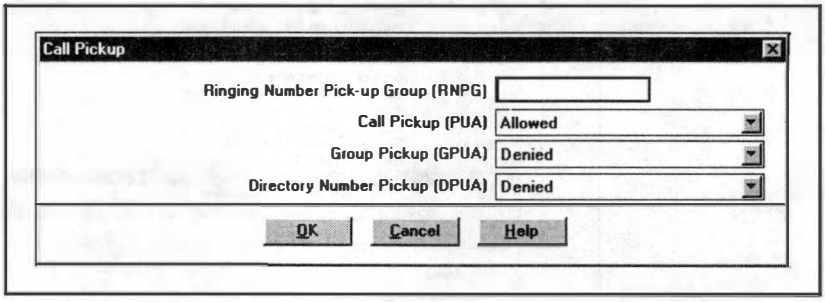
You can examine and modify any number of features in one session by selecting another feature each time you return to this dialog from the Feature dialog. You can modify features until you have completely defined the features for this station.

When you are finished defining or examining features, choose **Done** to return to the set dialog. If you have assigned keys, the appropriate keys are labeled in the set dialog.

Feature Group category

When you select **Search by Feature Group** and choose **Select** in the Features dialog, a dialog that defines the selected feature appears. The dialog shown here is for the Call Pickup feature. The other dialogs are similar in appearance.

Figure 10
Search by Feature Group dialog (example)



The dialog contains fields (usually text boxes associated with drop-down selection lists) that define the functionality of the feature. If the feature can be assigned to a key, the dialog also contains a Key Features list of functions that can be assigned to a key for this feature.

Forced targets

Certain validations force certain classes to a particular target value. For example, filling in the "Flexible Call Forward No Answer DN (FDN)" field of call redirection forces "Call Forward No Answer (FNA) to "Allowed". This target enforcement occurs only as the feature dialog is exited. There may be a noticcable flickering of the screen as the values are forced and the dialog exits.

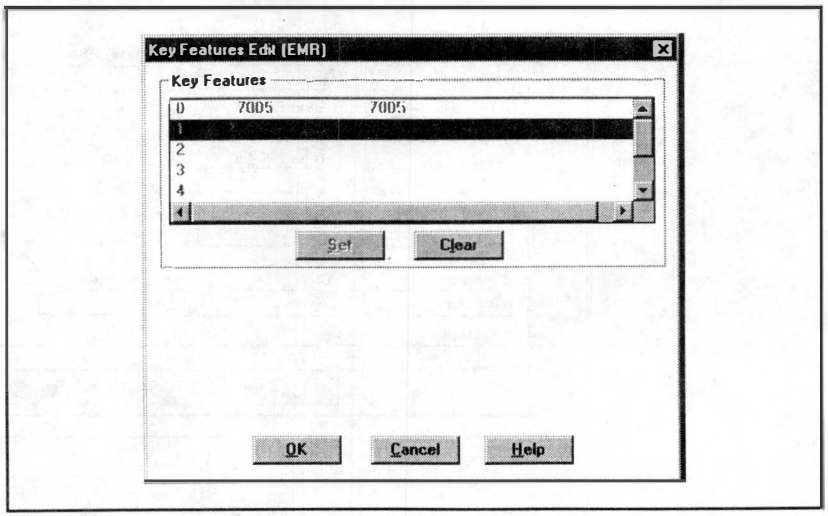
Key Features

The Key Features field is a single-selection list of features associated with this feature group. You can assign the function selected in this list to a key for the current station.

You assign features to a key from the Features Definition dialog. Double click the desired function in the Key Features list of the Features dialog to display the Key Features Edit dialog for the selected function.

The dialog shows a single-selection list of key numbers. Each key in the list shows any already-assigned feature (and associated DN if applicable). The list is dimmed except for any assignment made during this session.

Figure 11
Key Features Edit dialog



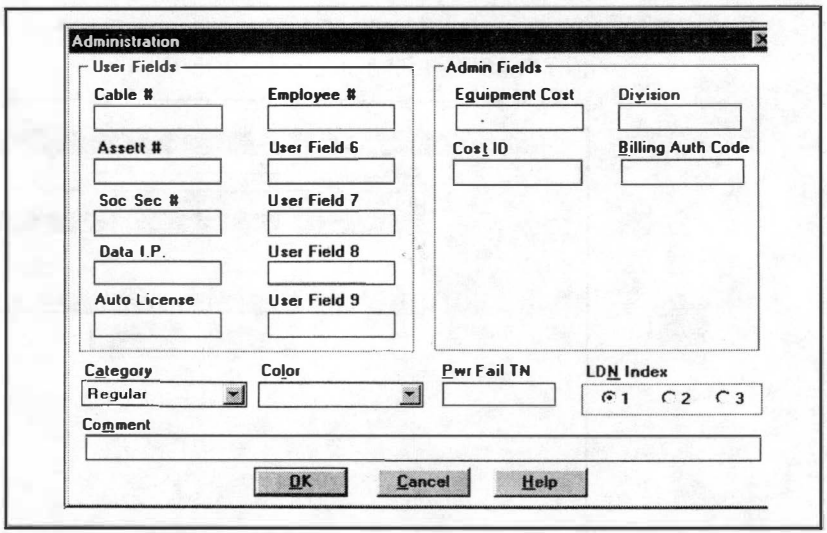
The list field is associated with two function keys, **Set** and **Clear**. If the selected key is already assigned, the **Set** function is dimmed. Use the **Clear** function to remove a key assignment. Use the **Set** function to assign the current feature to an unassigned key.

At any time, click **Cancel** to return to the Features definition dialog without changing the current key assignments. Click **OK** to assign key function and return to the Features Definition dialog.

Administration

Choose **Admin** in the Set dialog to display the Administration dialog. The Administration dialog allows you to assign values to fields that MAT uses in classifying and administering station data. These fields are not part of the Meridian 1 data block. The user fields and their labels are assigned using **Edit - User Field Names**. These headings allow you to define values for your own situation. This option contains text boxes so that you can assign specific values to these fields for this station.

Figure 12
Administration dialog



The data entry fields in this dialog include:

Category: A drop-down list of line connection types for this station

Color: A drop-down list of colors available for this instrument.

Power Fail Trunk TN: A text box for the TN used if the system power fails.

Listed Directory Number Index: Radio buttons to define which of three indexes contains the DN for this station. A DN index is set up at the system level when the Numbering plan is defined. The index is used while viewing and printing designation strips for this instrument.

Admin Fields: The Admin fields are used by the Call Accounting Billing Database for billing purposes and other types of lost allocation. Refer to the *MAT Call Accounting User Guide* Database Maintenance section for details.

Designation Strips

A telephone can have many features and services available by function buttons (keys) and indicators. A Designation Strip is a printout of labels that can be attached to the telephone to indicate the function of the various buttons and indicators on the set (and also the DN of the station using the set). You can create files that let you examine and print Designation Strips created from the data defining the stations using **File - Designation Strip**.

A Designation Strip will typically contain the directory number for a single line set. In addition, sets with key caps that designate a DN (for multi-line sets) or reference other DNs also appear in the Strip.

Designating Directory Numbers

A Meridian 1 system can have up to three listed directory numbers (LDN). The system Numbering Plan defines whether ranges of directory numbers (DN) are set for direct inward dialed (DID) or not. Typically, a station DN, as defined for the Designation Strip, is a regular 10 digit telephone number with an extension:

(aaa) xxx-aaaa Ext *bbbb*

Where:

aaa	represents the area code
xxx	represents the exchange
aaaa	represents the number
bbbb	represents the extension

The Designation Strip utility examines the System Configuration Customer data to determine the LDN used by the station. The utility determines whether the station DN is in a DID range defined in the system Numbering Plan. The following are the two possible results:

Non-DID number: The Strip prints the LDN and uses the station DN for the Extension.

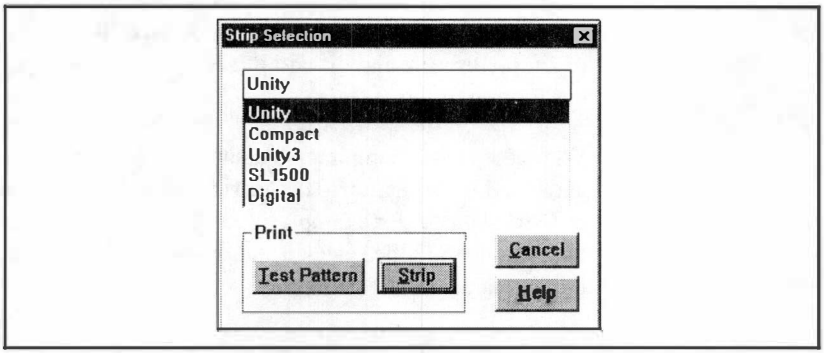
DID Number: The Strip gets the area code (aaa) from the LDN, the exchange (xxx) from the DID number, the number (aaaa) from the station DN.

Display of Designation Strips

Choose **File - Designation Strips** from the Station list window to display the Strip Selection dialog.

The dialog contains a single-selection scrollable list of Designation Strip types created by MAT. The current selection is highlighted.

Figure 13
Strip Selection dialog



Station Data Validation

The station database contains one record per station. Some of the field values in a record depend on the system properties, the instrument used, and features and options enabled. In addition, the MAT application contains "rules" that define possible values, sizes, and ranges for the fields.

The Station Administration module includes a Validation utility that checks that the values assigned to certain fields are compatible with the configuration and the MAT data rules.

The Validation function checks the currently selected station records in the Station list view before uploading to the Meridian 1. There are two options—partial and full validation. Full validation checks every field and might require considerable time.

> ***Note:*** You can validate each station individually using the Validate function key on the set dialog.

Validating the Data

Select the stations for validation in the Station list view and choose **File - Validate** to display a cascading submenu. Choose **Partial** (checks the values defined previously) or **Full** (checks all field values) to start the Validation check.

While MAT performs the checks, a status box indicates progress in single record increments. At any time, click **Cancel** in the status box to halt the task.

Note: Clicking **Cancel** discards the validations already completed.

When the task is complete, the MAT Viewer displays the validation data. You can save this to a text file (in a user-defined file name and location), print it, or simply browse and discard it (see "Generating Reports" on page 83 for a description of the Viewer).

When the task is complete, you should send all the new or modified station and CPND information to the Meridian 1 system. You may select all the **NEW** or **CHG** stations, for example. You should apply the Validation process from the **File** menu to the selected stations to ensure that the entered data is consistent across all stations.

CPND

CPND Overview

Call Party Name Display (CPND) displays the source of an incoming call to the called station user. The CPND data is associated with a DN, and not with any particular station. If CPND data is assigned to a DN, it may be associated with multiple stations.

The CPND Administration module is separate from the Station Administration module. CPND Administration lets you create, maintain, change, and report on single and multi-line CPND information. CPND Administration data defines the setup for each customer's CPND configuration and CPND Name data defines the display parameters for DNs used by a particular customer. Station configuration data and CPND data are separate within Meridian 1 and are treated as separate files within MAT.

CPND data for a station is accessible through the Station Administration module. The CPND button in the DN list of the Station module allows you to maintain CPND information directly from the DN list. This is particularly convenient if several DNs are to be linked back to the name for this station.

CPND is provided as a separate module to allow you to directly enter CPND data for DNs, Dial Intercom Groups, or DNIS IDC. The display of MAT CPND records shows the synchronization status and can be used to selectively synchronize this data with the Meridian 1 system.

CPND Data Considerations

You should be aware of the following considerations when using the CPND Administration function of Station Administration.

CPND Names vs. Station Names

The name defined for CPND need not necessarily be the same as that defined for a station end user on the face of the station graphic. The Station Configuration Name is only maintained in MAT and is not stored in the Meridian 1. The name stored by MAT is the CPND associated with a particular DN.

In most cases, the name on the station graphic is also the name associated with a DN of the station. MAT allows you to link the name on the graphic with one or more of the DNs on the station. To link the name on the graphic with a DN, fill in the location of the set in the "getname from location" field on the Name dialog.

If the name data is linked in this manner, the first and last names in the name dialog will be filled in and grayed. The data can only be changed from the station graphic. In order to remove the linkage, remove the location from the "get name from location" field in the Name dialog.

The CPND Name information is accessed in either the Station module (from a CPND function button in the DN list dialog) or the CPND module. All CPND data is synchronized with the Meridian 1 system using Overlay 95 (and not with the CPND prompt in Overlays 10 or 11 as in recent versions, Release 19, of the Meridian 1 system).

CPND Synchronization

CPND and Station synchronization are separate functions. They are only connected if CPND data is defined from the Station DN list, or if the CPND name is taken from the Name field of the Station Administration module.

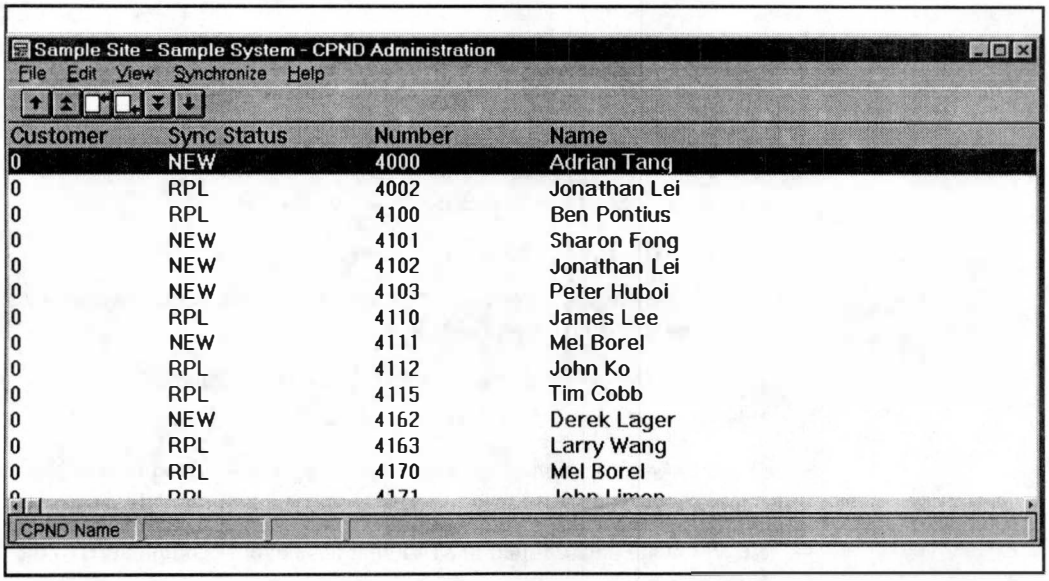
In some cases, MAT is aware of such a connection. If MAT is in Maintenance mode, the system automatically attempts to synchronize the new CPND information when the station is transmitted. In installation mode, you must synchronize CPND data separately from within the CPND module.

The CPND Module

The MAT CPND Administration module allows access to the CPND data for a single Meridian 1 system. When you open the CPND module, a list of name data contained within MAT is displayed. If the data has not yet been retrieved from the Meridian 1 or added to the MAT database, the window contains no data.

Figure 14 shows the MAT CPND Administration window as first displayed.

Figure 14
CPND Administration window



Accessing CPND Data

The MAT CPND Administration window allows you to configure CPND blocks. After CPNDs are configured, you can configure Name data for stations.

CPND Administration View

With **View - CPND** selected, the CPND Administration window displays the list of CPND blocks configured for the system. The following information is displayed for each customer:

— Customer: The customer number as defined in the system configuration.

— Sync Status: See CPND Name view for more detail.

The data in the window is part of the CPND Administration data stored in MAT. The complete configuration data for this system is available as described in the CPND Data Change section of this document.

CPND Name View

With **View - Name** selected, the CPND Administration window shows a list of names defined in the open system. The following headings define the data for each station displayed:

— Customer: The customer number that uses this DN.

— Number: The DN using the CPND data.

— Name: The defined CPND name (not the name of a station user unless called for in the Location field).

— Location: The optional unique station Location for the CPND name source.

Sync Status: An indication of whether Meridian 1 data and the data in MAT are synchronized. The following list defines the status for CPND data:

— **NEW**: CPND data defined in MAT that has never been uploaded to the Meridian 1.

— **TRN**: The CPND data is synchronized with Meridian 1.

— **CHG**: Data has been changed in MAT but the change has not been sent to the Meridian 1.

— **RPL**: Data defined in MAT to replace synchronized name data.

— **OUT**: Synchronized CPND data deleted from MAT but not yet removed from the Meridian 1.

The data in the window is part of the name display data stored in MAT. The complete name data is available as described in CPND Data Change.

Recommended Usage

You cannot build CPND Name data until the CPND data block is defined. First you must configure (or retrieve from Meridian 1) the CPND data block for the selected customer.

When the customer's CPND data block is defined, you can create (or retrieve from Meridian 1) the CPND Names display information.

CPND Data Change

You can change the data associated with the selected CPND view. The selected item in the list view is highlighted. Select an item using a mouse click or use the up/down arrow keys to highlight the desired item. You can also double-click the desired item.

Choose **Edit - Delete** to remove the selected CPND list item. Choose **Edit - Update** or **Edit - Add** to display a dialog that allows you to update the data fields for the selected view.

The two available list views for CPND data are:

— Customer Configuration list (CPND Administration).

— Name display list (CPND Name)

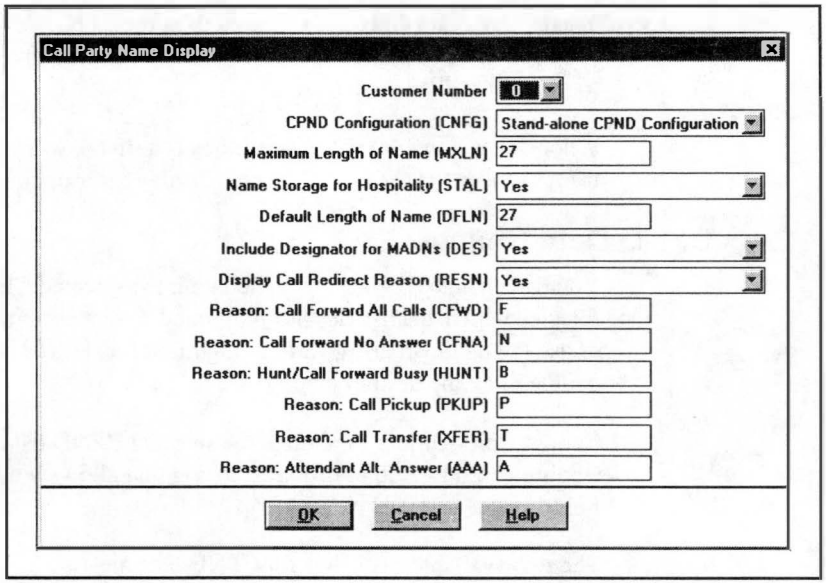
The CPND list view contains only a few items (just one in many cases). This view lists the CPND blocks configured on this system. The Name view might have many items, probably more than will fit in the current window. This is the scrollable list of names whose display parameters are defined for CPND.

Updating the Customer Configuration Data

With **View - CPND** selected, you can change the selected customer's CPND data. The selected CPND block is indicated by a highlight bar in the customer list window.

Choose **Edit - Update** to display the Call Party Name Display dialog:

Figure 15
Call Party Name Display dialog

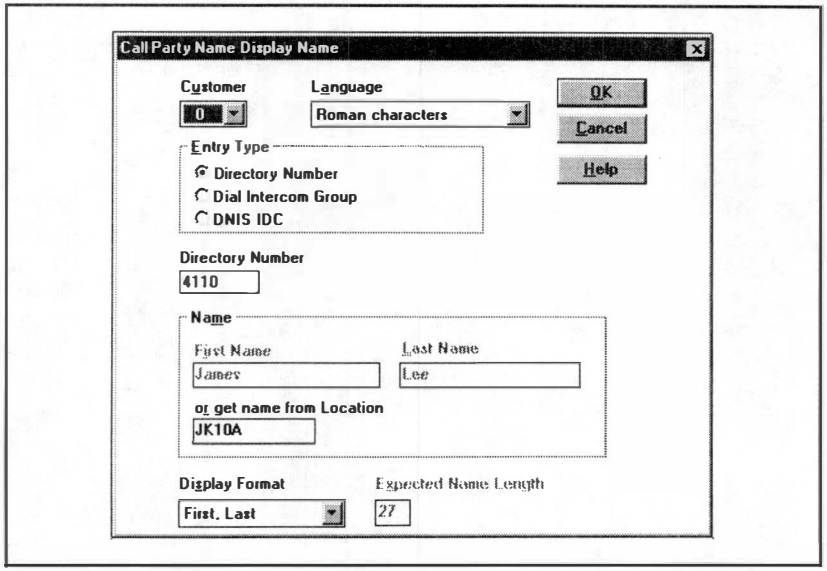


Updating the Name Display Data

Choose **Edit - Update** in the CPND Name view window (or double-click the item in the list) to display the CPND Name dialog for the selected station name.

Use on-line documentation to get information about the fields found on this dialog.

Figure 16
CPND Name dialog



Voice Mailbox

Overview

Voice Mailbox (VMB) data is similar to CPND in that it exists as a separate entity within MAT. However, it is associated with a Directory Number (which serves as a mailbox ID), and modifications to the VMB data can be made from any station which has an appearance of the mailbox DN. The station provides a means of access to data which is not a part of the station itself.

Voice mailbox differs from CPND in that it does not have a dedicated overlay. CPND information can be modified using overlay 95 as well as overlays 10 and 11 (MAT uses overlay 95). Voice mailbox information is only accessible from overlays 10 and 11.

VMB Data Considerations

VMB data is accessible from the Station Administration module (DN list dialog). VMB data is retrieved and transmitted with station data. There is no separate VMB communications task as there is for CPND.

When you delete a station which has one or more single appearance DNs with associated mailboxes, you are prompted to delete the mailbox(es) on the Meridian Mail system. This information is used to respond to a VMB prompt when the station is OUT'ed on the system.

VMB data can be modified at the Meridian 1 system through the Meridian Mail interface. MAT synchronization is a two step process, as follows:

1 The Meridian 1 database must be synchronized by uploading the information from Meridian Mail using overlay 48.

2 A station retrieval synchronizes the MAT database with the Meridian 1.

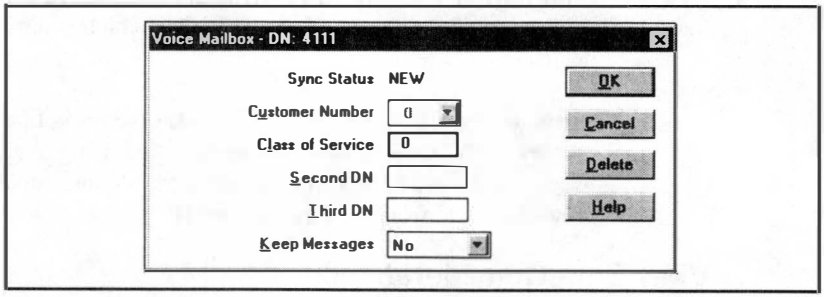
Administering VMB

VMB data administration in MAT is provided within Station Administration from the DN assignment function.

Adding/Changing Stations

When adding or changing stations, you can access VMB data by choosing the **VMB** button from the DN assignment dialog, similar to CPND. There is no **VMB** button in this dialog for systems without feature package 246. There is also no **VMB** button for multi-line stations when the key is not SCR, SCN, MCR, or MCN. Clicking the **VMB** button brings up the Voice Mailbox data entry dialog.

Figure 17
VMB data entry dialog



The title bar of this dialog shows the DN associated with the mailbox. If it is an existing mailbox, the data fields contain information from that mailbox record, including the following:

Synch Status: This is the synch status of the VMB record, which might be different from the synch status of the station.

Class of Service: Numeric entry field (0-127). This field is required when the mailbox is in **NEW** status, and there is no default value.

Second DN: DN entry field. Double clicking the box displays the DN list dialog.

Third DN: DN entry field. Double clicking the box displays the DN list dialog.

Keep Messages: Drop-down listbox containing **YES** and **NO** (**NO** is default). This field is only available when the VMB synch status is **NEW**.

The VMB synch status indicates which operation is required at the VMB prompt in overlay 10 or 11.

— **NEW**: VMB does not exist on Meridian 1 and will be added at upload time.

— **CHG**: VMB exists on Meridian 1 and will be changed.

— **OUT**: VMB exists on Meridian 1 and will be removed.

— **TRN**: VMB exists on Meridian 1 and no update is required.

Use the **Remove** button to change the VMB synch status to **OUT**. This operation is confirmed with a message box. When a VMB is in **OUT** status, no further updates are allowed (except for **UNDO**).

If a VMB is modified or added from an existing station, that station's synch status becomes **CHG** in order to allow the VMB update to occur as part of a station update.

Deleting Stations

When you remove a station that has a single appearance DN with an associated mailbox, you are prompted to determine if the mailbox should be deleted on Meridian Mail as well. In order to respond to this prompt, MAT also prompts you for this information when you delete stations. However, to avoid possible synchronization problems, a different method is used.

When you delete stations in MAT, the delete confirmation dialog is displayed. On systems with VMB, this dialog contains a Delete VMB checkbox that defaults to checked (YES).

Your YES or NO response is used to continue or cancel the deletion. The delete VMB information is stored as part of the delete transaction, so that it applies to all affected stations. MAT uses this information to respond to any DELETE_VMB prompts presented during transmission of the deleted stations.

The implications of this approach are as follows:

- You are prompted for this information even if none of the stations being deleted has a single appearance DN. In this case, the information is never used.
- If you wish to delete two stations but give different responses to DELETE_VMB for those stations, two separate **Edit - Delete** operations are required.

This guarantees that the correct information is stored in the station that will actually get the DELETE_VMB prompt. In cases where all occurrences of a multiple appearance DN are deleted within the MAT database, only the last station transmitted will receive the DELETE_VMB prompt. Since it is not possible to know which station will be transmitted last in all situations, the DELETE_VMB information must be stored with all the stations.

This procedure prevents accidental deletion of mailboxes when the MAT and Meridian 1 databases are not completely synchronized. Since MAT prompts you on any deletion (even if no single appearance DN's are involved), the DELETE_VMB information is available if the Meridian 1 prompts for it unexpectedly. For example: The MAT database has two appearances of a DN, but the Meridian 1 database has only one (due to a change done in overlay 10 or 11).

Changing DNs

When you change a DN on a station, its associated mailbox must be removed from the VMB file if the DN prior to the change was single appearance. You should delete the VMB record when you commit to the station update by clicking **OK** on the Station dialog. In order to warn you when a mailbox record is to be deleted, a confirmation dialog appears.

The confirmation dialog appears when a station change will result in one or more mailboxes being deleted. If you choose to cancel at this point, the entire station update is canceled. If you choose to continue with the operation, the mailbox can be restored later by performing an undo of the station update.

Because a single mailbox can be updated from multiple stations and those stations can be transmitted to the Meridian 1 system in any order, there are some synchronization issues which can not be resolved by MAT. Some of these issues are described in the examples below.

All of the following examples involve two transactions, which, by default, are transmitted on a first-come-first-served basis. The ambiguities described below only occur if you schedule the second transaction to be transmitted before the first.

VMB Data Synchronization

Consider the following examples when scheduling synchronizing station data associated with Voice Mailbox data:

Example 1—Deleting Stations

Station A and Station B have the only two appearances of DN 2000, which has an associated voice mailbox.

1 Delete station A and respond **YES** to the Delete VMB dialog.

2 Delete station B and respond **NO** to the delete VMB dialog.

If station A is scheduled before station B, the mailbox is deleted on Meridian Mail. If station B is scheduled first, the mailbox will not be deleted.

Example 2—Adding a Mailbox

Station A has single appearance of DN 2000, which has an associated voice mailbox in TRN status.

1 Change DN on station A to 2001 (this deletes the VMB record for 2000).

2 Add station B with DN 2000 and create a new voice mailbox for it.

If station B is scheduled before station A, the transmit will fail when it attempts to create a new mailbox for DN 2000. It will exist on the system until station A is transmitted.

Example 3—Changing a DN

Station A and station B both have an appearance of DN 2000, which has an associated voice mailbox. Station B is in **TRN** status.

1 Update the mailbox via station A.

2 Before transmitting station A, change DN 2000 to 2001 on station A.

When station A is transmitted, the updates to the voice mailbox are not made, because station A no longer has an appearance of DN 2000.

Global Update

Overview

The Global Update function is available in both the Station Administration and the CPND Administration modules. It lets you change common data values in each of selected items in the main application window (Station list or CPND list) either directly or through a confirmation option.

The Global Update procedure involves the following steps:

1 Select those list items that you wish to update. You can use the **Select** feature to select stations based on specific criteria.

2 Select a field for update.

3 Define the update or updates to perform on a selected field in the selected items.

4 Execute the change.

You can perform the update on all selected items directly, or you can do it through a confirmation option on an item-by-item basis.

If you are running in Installation mode, you are prompted to set up communication with Meridian 1 whenever you modify a data record. You can synchronize the data now, schedule a time for synchronization, or cancel the prompt and schedule synchronization later. See "Communicating with Meridian 1" on page 59.

Selecting Data Items

In a data list window of Station Administration or CPND Administration, select the items you wish to update. You can change the current selection as follows:

1 Click to select a single item.

2 Use the space bar to turn off all selections and select only the first station in the list. This method of selection turns off all other selections, leaving only the single current selection.

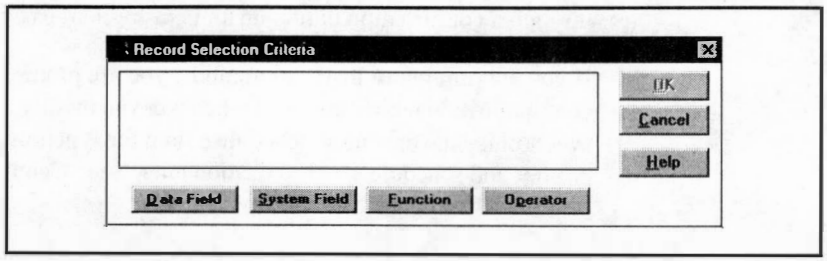
3 To select multiple stations, hold down the <Shift> key and click a station, or press the space bar, to toggle the selection status of that station without affecting other selections. If you hold down the <Shift> key you can use the up and down arrow keys to add the next adjacent item to the highlighted list.

Choose **Edit - Select All** to select all items, or you can define criteria to select a group of stations using **Edit - Select**.

Define Selection Criteria

To define criteria for record selection, choose **Edit - Select** in the Station view of the Station Administration window or in the CPND Administration window. This displays a Record Selection Criteria dialog in which you enter the expression defining the selection criteria.

Figure 18
Record Selection Criteria dialog



An expression is a formula that follows standard mathematical conventions regarding the use of brackets ({}) and the order of operations (add, subtract, multiply, or divide). Operations can act on numeric data or on field values from the MAT database. Field names must be exactly as defined in the MAT database. You can enter the desired expression by typing it in the text box directly, or by using the selection criteria and operation buttons provided.

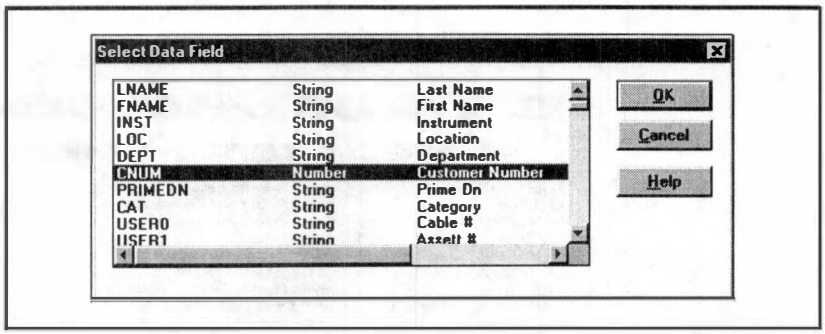
The dialog has buttons that allow you to select fields, operators, and functions to build a valid expression. You may have to modify the position of brackets when completing the expression.

When you have finished creating a valid expression, click **OK** to display the Station Administration window. Those items which fit the criteria are highlighted. You can still modify this selection as described in "Selecting Data Items" on page 46.

Select Data Field

When you choose **Data Field**, a list of available fields is displayed in a Select Data Field dialog:

Figure 19
Select Data Field dialog

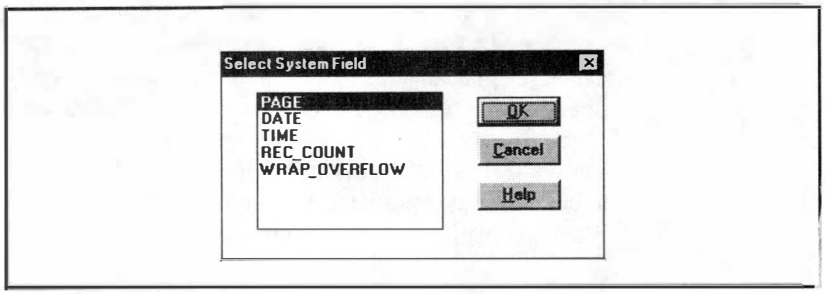


Select the desired station or CPND field name and click **OK** to paste the field into the Select Criteria expression text box at the current cursor position. You can type a letter to scroll the listing to the next item starting with that letter.

Select System Field

When you choose System Field, a list of available fields is displayed in a Select System Field dialog.

Figure 20
Select System Field dialog

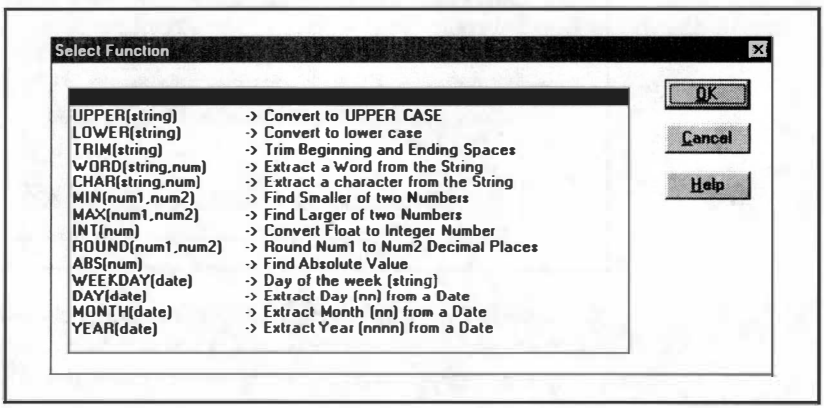


Select the desired field name and click **OK** to paste the selected field name into the Select Criteria expression text box at the current cursor position.

Select Function

A function can generate a value on its own, or it may act on the field directly after it in the expression to produce a value that depends on that field value. When you choose **Function**, a list of available functions is displayed in a Select Function dialog.

Figure 21
Select Function dialog

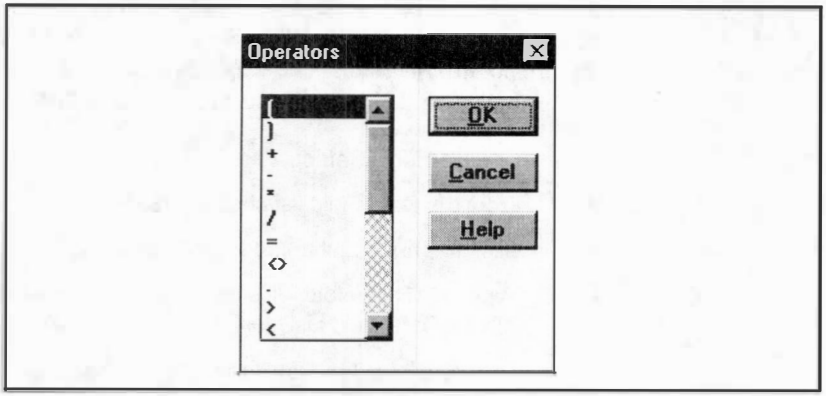


Select the desired field name and click **OK** to paste the selected function name into the Select Criteria expression text box at the current cursor position.

Select Operator

An operator causes a mathematical combination of field values (arithmetic, Boolean, conditional, and so on). When you choose **Operator**, a list of available operators is displayed in an Operators dialog.

Figure 22
Operators dialog



Select the desired operator and click **OK** to paste it into the Select Criteria expression text box at the current cursor position.

Selecting the Items for Change

When you have completed the selection criteria expression, click **OK** to return to the Administration list window. All items that meet the defined criteria are highlighted.

Example Expressions

Below are examples of selection expressions to help you understand the Select feature.

Example 1

Select all stations that have been changed in the MAT database since the last transmission to the switch.

The SYNCH field shows synchronization for the sets in relation to the Meridian 1 database. If the synch status of the set is **TRN** (for transmitted) then all changes have been transmitted to the switch and the data is synchronized with the switch. Any other status (**NEW, OUT, CHG, RPL**) identifies a set that has been changed on MAT and needs to be transmitted to the switch (see the Sync Status section for details.)

In order to select all stations that need to be transmitted, you can either select all stations in **NEW, OUT, CHG** or **RPL** status or you can simply select all sets that are not in **TRN** status. The selection will be the same in either case. For this example, we'll choose all sets that are not in **TRN** status:

1 Choose Edit - **Select.**

2 From the Data Field list choose **SSTAT.**

3 Click <> (not equal to) from the Operator list (or simply type in <>).

4 Type in **"TRN"** (Note: all strings must be enclosed in quotes. Column 2 in the Data Field List identifies the field as either a string or numeric).

5 The complete command in the Record Selection Criteria edit box is as follows:

6 STATION->SSTAT<>"TRN"

7 Note that instead of following steps 2-4 you can simply type in the expression above.

8 Click OK.

All stations will be selected except those in **TRN** status.

Example 2

Select all stations with a prime DN between 4000 and 5000.

To select all stations within this range, select all sets with PRIMEDN>4000 and PRIMEDN<5000. MAT will allow you to do this by following these steps:

1 Choose Edit - **Select.**

2 Select PRIMEDN from the Data Field list.

3 Select > from the Operator list (or simply type in >).

4 Type in **"4000".**

5 From the Operator list select **.AND.**

6 Select **PRIMEDN** from the Data Field list.

7 Select < from the Operator list (or simply type in <).

8 Type in **"5000"**.

The complete command is as follows:

STATION->PRIMEDN>"4000".AND.STATION->PRIMEDN<"5000"

9 Click **OK**.

All stations that have a prime DN between 4000 and 5000 will be selected.

Example 3

Select all M2616 sets with class of service CFXA.

1 Choose **Edit - Select.**

2 Select **INST** from the Data Field list.

3 Select = from the Operator list (or simply type it in).

4 Type **"M2616"** (criteria is case sensitive; make sure you use a capital M).

5 Select **.AND.** from the Operator list.

6 Select **CFXA** from the Data Field List (the mnemonic CFXA represents Call Forward which can be either allowed "CFXA" or denied "CFD").

7 Type in **"= CFXA".**

8 Click **OK**.

All M2616 type stations with Call Forward External Allowed (CFXA) will be selected.

Specify the Change

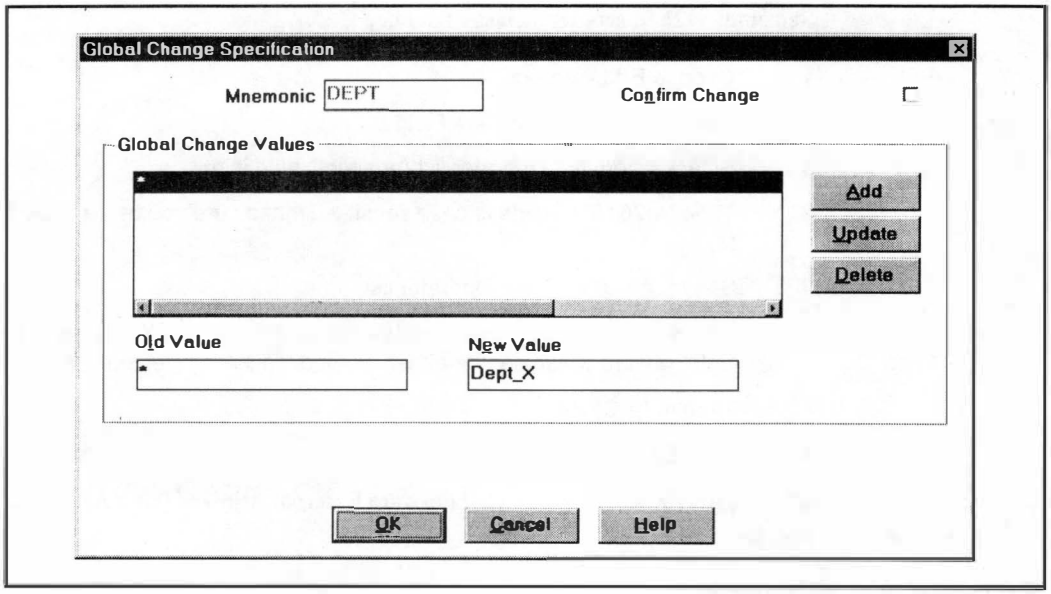
You can perform a global update on a single field in each item selected in the list window. Once you have selected the desired items for update, you select the field to change.

Select the Field to Change

When you choose **Edit - Global Update**, the Select Data Field dialog list appears. The fields listed include only those that can be changed globally. For example, the Instrument (INST) field is not included in this list because some of the fields and their values in the record depend on the instrument.

When you have selected the field to change, click **OK** to display the Global Change Specification dialog. The selected field name is displayed in the Mnemonic box. The example below shows the entries required to change all selected station departments to "Dept_X".

Figure 23
Global Change Specification dialog



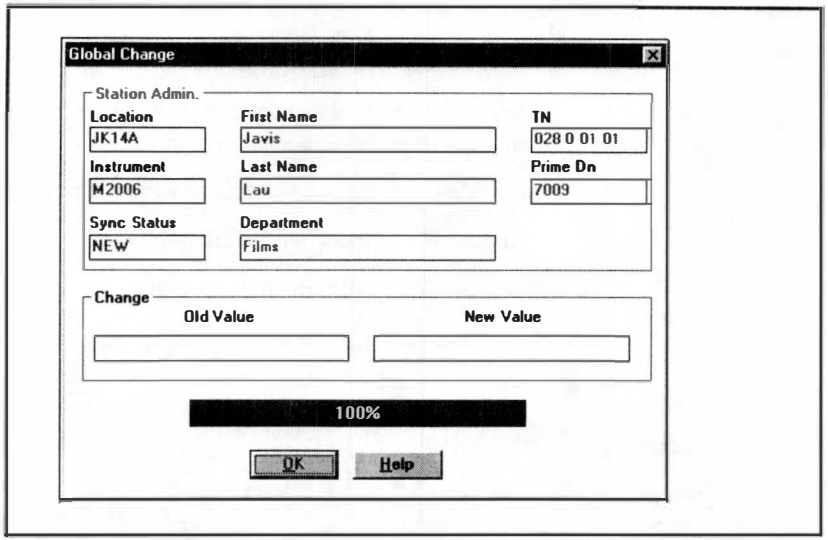
The Global Change Values edit list box lets you set up the changes in the field values of the field indicated by the Mnemonic box. The list box contains a list of changes that you define by entering values in the Old Value and New Value fields.

> ***Note:*** The Old and New Value text boxes are case-sensitive. The values must be entered in the same case as is used in the MAT database. For example, "**Dept._B**" and "**Dept._b**" are not the same values.

Perform the Global Change

When you click **OK** in the Global Change Specification dialog, the Global Change dialog appears. This dialog is a status dialog only (you cannot edit any of the fields).

Figure 24
Global Change dialog



The dialog contains a Station Definition area to identify the station currently being changed. The Change area displays the Old and New Values.

If you are not using change confirmation, a "percentage done" bar informs you of the progress of the changes.

While the change is in progress, the dialog displays the **Cancel** and **Help** buttons. **Help** displays help for this dialog and **Cancel** halts the change task.

WARNING

If you click **Cancel**, there is no way of controlling which records are changed and which are not.

When the task is complete, the **Cancel** button is replaced by an **OK** button.

Change Confirmation

If you elected to confirm changes, a Confirmation dialog asks you whether to "Change this record?", for each station record in turn. The Global Change dialog contains Station identification and Change identification data for the current field.

You can move this dialog in the same way as other Windows dialogs in order to see the progress bar and function buttons in the Global Change box.

The Confirmation dialog displays the following buttons:

— **Change:** Perform the change indicated in the Global Change data box and proceed to the next station.

— **Skip:** Proceed to the next station without changing the current one.

— **Change All:** Proceed with all remaining changes without confirmation.

— **Cancel:** Cancel all remaining changes.

During the change process, the progress bar changes and the Global Change data area is updated.

Change Completion

When the Global Change task is complete, the Confirmation box is cleared, the Global Change box indicates 100% completion, and the **Cancel** button is replaced by an **OK** button.

Click **OK** in the Global Change dialog to return to the list window.

Global Update—Wildcards, Matching, and Allowed Fields

If you choose **Edit - Global Update**, you build a list of changes for a single field on the selected records. The list of changes is built by adding requests to change Old Value to New Value for the chosen field. To improve efficiency and to shorten the list of changes, you can use * (asterisk), the wildcard character. The wildcard matches any value in the field.

Wildcard matches that you specify are always done after the other Old Value matches have failed. Otherwise, matches are attempted in order. For each selected record, the first change request that matches the Old Value is implemented.

Key* allows you to update a feature when the key on which the feature resides is unknown. For example, suppose you wish to update the Conference key on all sets to No Hold Conference/Autodial. The Conference key may exist on any key of the selected station(s). **Key*** allows you to update the key feature without knowing the key number. MAT searches for the first occurrence of the feature specified, and updates that key per the instructions. See "Global Update—Examples" on page 55 for more detail.

Certain fields on the station may not be changed with the Global update facility:

— Location must be unique for each station, so Global update is not permitted.

— Station type may not be changed with global update.

— Certain administrative features of a station, including color and type cannot be changed.

Global Update—Examples

A few examples are provided below to help you use the Select and Global Update features. These examples provide the basic steps for selecting stations based on certain criteria and updating common fields. These methods can be applied to a variety of Global Update situations.

Example 1

Suppose you wish to change all DNs in the range 4000-4999 to a 5 digit 54000-54999. You wish to apply this change to all stations for Customer 1.

1 Global Update is applied to selected stations only. You should therefore select all stations for Customer 1. Choose **Edit - Select**. Click on Data Field and choose the Customer Number field to build the expression **STATION->CNUM = 1**. (The **STATION->CNUM** portion is provided automatically when you select Customer Number from the list of Data Fields).

If there is only one customer on the Meridian 1 system, use **Edit - Select All** to select all the stations for this DN change.

2 Choose **Edit - Global Update** to specify the DN change.

- Specify the field to be changed in the Select Data Field dialog. MAT provides a special field called All Directory Numbers. You can move the highlight in the Select Data Field dialog until the All Directory Numbers field is highlighted. Click on **OK** to select the All Directory Number field.
- In the Global Change Specification, you are asked to build a list of each old value and the new value with which to replace it. The Mnemonic field shows that we are working with the field All Directory Numbers (ADN).

  Enter the DN range 4000-4999 in the Old Value box. Move to the New Value box and enter 54000-54999. To enable this change, click **Add**. The requested change appears in the Global Change Values box. (You can Update or Delete each entry in the Global Values box by clicking the appropriate button.)

  When you are satisfied with this change request, click **OK**.
- MAT examines each station to see if any changes need to be made. A meter marks MAT's progress through the stations. Click **Cancel** to halt the updating process.

  For any applicable station, the Global Change dialog displays identifying information for the station and the old and new values that are to be modified.

Example 2

Suppose you wish to change all Conference keys (A03) on all stations to No Hold Conference/Autodial keys (CA). Conference may currently be configured on any key on the selected stations.

1 Select the stations to be updated. Since all stations need to be changed, choose **Edit - Select All**.

2 Choose **Edit - Global Update** to specify the desired change. Choose **Key** from the Select Data Field window. (You can move immediately to the Key mnemonic by typing in the first letter of the mnemonic, **K**.) The Global Update window appears. A list box allows you to specify which key to change. Since you are not sure which key on each station is equipped with Conference, use **KEY***, the default for this list, to update the feature regardless of the key number.

3 Enter the existing value of the key to be changed in the Old Value box, **A03** and **TAB**. (If the key you wish to change has parameters, tabbing brings up the parameter fields.) Conference does not have parameters, so tab moves you to the New Value box. Enter the mnemonic of the new feature (in this case, **CA** for No Hold Conference Autodial). Press **<Tab>** to display edit boxes for the parameters associated with the new feature. Enter the appropriate data in the parameter fields.

4 You can choose to confirm each change. Once you click **OK**, MAT begins the updates. MAT searches each selected station for the first occurrence of A03. If A03 is encountered, MAT changes the key to the new value: CA. Note that if the station contains multiple Conference keys, only the first will be changed. You can run a second global update to change the second appearance of a feature.

Example 3

Suppose you wish to add a feature to the first blank key on each set, but the first blank key may be a different key number on each set.

The choice of **Key*** for your Global Update criteria will tell MAT to look for the first occurrence of a particular feature on each set selected. When MAT encounters that specified feature it will change that first occurrence to the specified new feature and then proceed to the next set. In this example, the feature we are looking for is a blank feature. Perform the following steps:

1 Select all the stations you wish to change.

2 Select **Edit - Global Update**.

3 Choose **KEYGUPD** (Key Global Update) from the criteria list.

4 Choose the key number **KEY*** (this is the default).

5 Enter nothing (blank) in the Old Value, enter the new feature mnemonic and appropriate parameters in the new value. Select **Add** to add to the Global Update list.

6 Click **OK.** All stations selected will have the new feature added to the first blank key. If a selected set does not have any blank keys, the feature will not be added to that particular set.

Communicating with Meridian 1

Overview

A Meridian 1 system can be programmed with relevant station and CPND data from the MAT application. The MAT application can also retrieve station data from a Meridian 1 system. For example, you can create a MAT database for a system and then upload relevant data to program a Meridian 1. You can make modifications within the MAT application and upload these to the system. At any time, you can download system data to the MAT application for record-keeping or verification purposes. If you have a Meridian 1 system and wish to start using MAT to administer the data, you would download the data from the system and update the data in MAT to include all MAT administrative and record-keeping data.

Your PC uses a modem to communicate, through normal telephone wires, with a modem in the Meridian 1. MAT Release 5.0 can also use an Ethernet connection if it is available on the Meridian 1. The communications protocols must be predefined in System properties of the MAT application. The Station and CPND modules use the **Synchronize** menu to schedule communications with the system.

Communications Considerations

Retrieving data is a two-stage process. The Meridian 1 data is first downloaded and stored in the current working directory (the MAT system subdirectory). Parsing converts the data into the MAT data format. This new data overwrites (synchronizes) the MAT database for the system with the data from the Meridian 1. The Meridian 1 data can be parsed at any time after retrieval.

MAT requests a customer number for all data retrievals in order to enforce the Meridian 1 Limited Access to Overlays (LAPW) restrictions. If the login password associated with the entered customer number is restricted from the print routines needed for synchronization, the data will not be retrieved.

Station Retrieval—TTY Port Configuration

During the synchronization retrieval operation, MAT requests a print of the information on the Meridian 1 through the SDI port. The port used for Station Administration retrieval should be configured only as a Service Change port. The MAT System Terminal application can be used to access Overlay 17 to temporarily configure the TTY port as SCH only (not required for Ethernet connections). If the port is configured for other data such as Traffic or Maintenance messages, MAT will attempt to distinguish this data from relevant station data. The retrieval log will give errors when data is not recognized as station data.

Station Retrieval—Log Window

During station retrieval, the amount of activity in other Windows tasks should be limited.

During long station retrievals, or if there is enough activity in other Windows processes, the capacity of the communications buffer can be exceeded. This condition will terminate the retrieval process to prevent erroneous data from being entered into the station database.

To prevent this occurrence, the Log Window will automatically minimize itself. The icon will be labeled "Log Window:" and will contain the current site and system names. You should wait momentarily and restore the Log Window to check the progress of the retrieval.

The Log Window remains on the screen longer if you resize it to contain fewer lines. The amount of window resizing and moving during station retrieval should be limited, since these activities will prevent the retrieval activity from processing incoming characters.

If the capacity of the communications buffer is exceeded during the retrieval, necessary data is being lost. The MAT software displays a message and terminates if the buffer is exceeded. In this case, stations are not added to the MAT PC database. The message is printed to the log file, warning that the data has been lost.

Repeat the retrieval to add the new station data. It is possible to retrieve a portion of the stations on the Meridian 1 by choosing **Synchronize - Retrieve - Specify**.

The Communications Task

Synchronization is a task that ensures that the MAT database reflects the data on the Meridian 1 system. The task can be achieved in two ways:

— Retrieve Meridian 1 data to the MAT database (download).

— Transmit MAT data to Meridian 1 (upload).

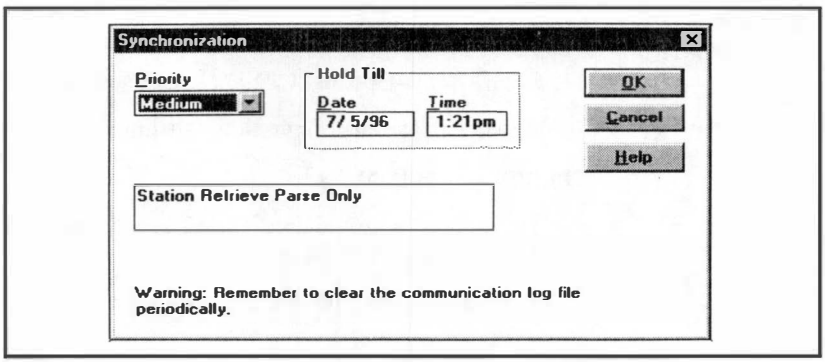
Note: It is recommended that you turn off all TTY messages (including bug messages) during download or upload.

Whenever you require access to a Meridian 1 that is defined as a system for the MAT application, use the **Synchronize** menu of the MAT module you are currently using (Station or CPND). You can use this menu to schedule upload or download of selected data, or you can define criteria to download or upload specific station or CPND data. Whenever you modify the MAT database, you are prompted to set up a transmit task to upload the new or modified data to the Meridian 1.

Synchronization

Whenever a communication task has been defined, you are prompted in a Synchronize dialog box to set up a schedule for the task.

Figure 25
Synchronization dialog



The following data can be entered to schedule a task:

Priority

The Priority drop-down list box contains the numbers 1 through 10, representing the priority level for the task. The number 1 represents High, 6 represents Medium and 10 represents Low. The default is Medium. Change the priority by selecting an item, or enter the number in the text box.

The Priority number determines where, in the current communications task queue, this task is placed.

Hold Till

Hold Till is made of two text box fields that determine when this task is sent to the communications queue.

Date

The date for the task in the format *mm/dd/yy*, where *mm* is the two digit month in the range 01-12, *dd* is the two digit day in the range 01-31, and *yy* is the two-digit year. The default entry is the current date (leading zeroes are dropped when the input is validated).

Time

The time for the task in the format *hh:mmxx*, where *hh* is the two-digit hour in the range 01-12, *mm* is the two-digit minutes in the range 00-59 and *xx* is AM or PM representing before or after 12:00 noon. The default entry is the current time.

Description

Station Update - Station Transmit

CPND Name Update - CPND Name transmit

CPND Update - Configuration transmit

Change as replace

This field is only available if MAT is in Maintenance mode. See 'Station Administration" on page 3.

If you accept the default entries, the task is scheduled immediately.

Click **OK** to send the task to the Scheduler module of the MAT application. If the task is not immediate, the Scheduler runs iconized on the desktop. The Scheduler must be running at the scheduled time for the task to be sent to the communications task queue.

You are not required to schedule a task at any particular time. You can click **Cancel** in this dialog and use the **Synchronize** menu at any time to schedule a task.

Download

This task updates the MAT database with selected data from the Meridian 1. You can select data items in the current list window (Station or CPND) or you can define criteria for system data to be retrieved.

When you choose **Synchronize - Retrieve**, a submenu allows you to select criteria for downloading selected station data. The submenu contains the following items:

All: All data for stations or CPND in the system

Selected: Only items selected in the current list of CPND or stations

Since: Only stations on the system that have changed since a specified date (not applicable to CPND)

Specify: Define criteria for stations or CPND data on the system for download

Parse Only: Parse previously retrieved data

Log: View or clear a log of communications activity

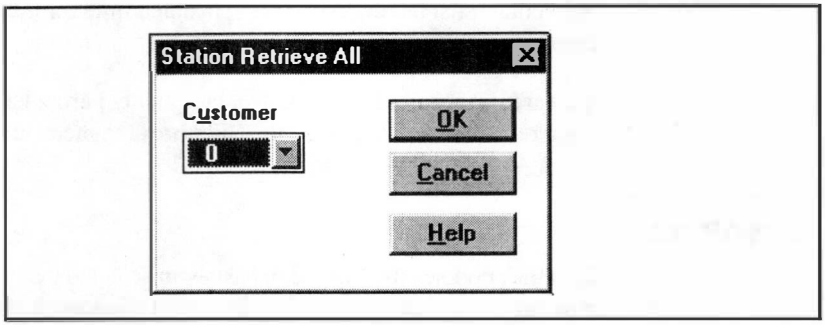
Retrieving All Data

You can set up communications with the system to retrieve all data (station or CPND) that pertains to a single customer in the Meridian 1 system.

Station Retrieve All

Choose **Synchronize - Retrieve - All** of the Station Administration module to display the Station Retrieve All dialog.

Figure 26
Station Retrieve All dialog



The dialog contains the following data entry field:

Customer

A single-line drop-down text box with a list of the customer numbers defined for the open system. The text box contains the currently selected item.

When you click **OK**, you are prompted to set up the communications task.

Note: During station retrieval, the hardware list is updated with cards that support the type of stations being configured in MAT. These might not be the exact type of hardware cards actually installed in the Meridian 1. However, they will be cards with equivalent function as the installed cards.

CPND Name Retrieve All

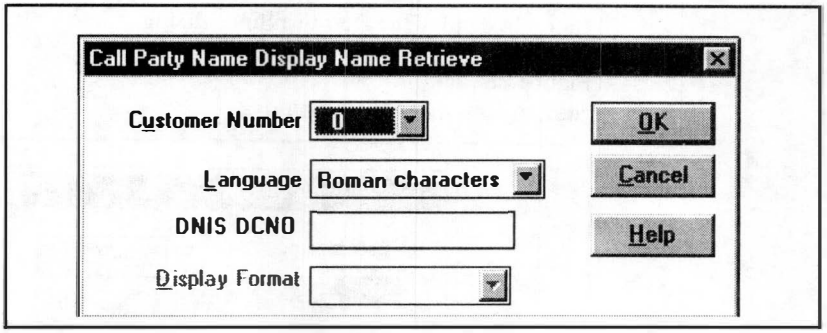
Choose **Synchronize - Retrieve - All** from the CPND Name view to display the CPND Retrieve dialog.

The CPND Retrieve dialog contains the following data entry fields:

Customer Number: A single-line drop-down text box with a list of the customer numbers defined for the open system. The text box contains the currently selected item.

Language: A single-line drop-down text box with a list of languages defined for the open system. The text box contains the currently selected item.

Figure 27
CPND Name Retrieve dialog



DNIS IDC: A text box in which you can enter the DNIS IDC for this group of CPND entries.

Display Format: A single-line drop-down text box with a list of the CPND name display formats defined for the open system. The text box contains the currently selected item.

When you click **OK**, you are prompted to set up the communications task.

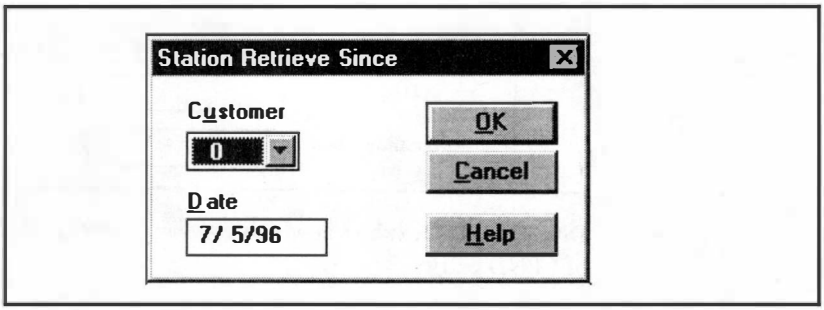
Selecting Data to Retrieve

You can select items in the Station list or CPND list window that you want to download from the Meridian 1. See "Global Update" on page 45. Meridian 1 data overwrites the data currently stored in the MAT database for the selected items. When you choose **Synchronize - Retrieve - Selected**, you are prompted to set up the communications task.

Retrieve Since Option

In the Station Administration module, choose **Synchronize - Retrieve - Since** to display the Retrieve Since dialog.

Figure 28
Station Retrieve Since dialog



The dialog contains a single field:

Date: This text box contains the date in the format *mm/dd/yy*, where *mm* is the two digit month in the range 01-12, *dd* is the two digit day in the range 01-31, and *yy* is the two-digit year.

When you click **OK**, you are prompted to set up the communications task. The task retrieves all data that has changed since the specified date.

> ***Note:*** During the Synchronization Retrieval operation, MAT requests a print of the information on the system through the SDI port. MAT attempts to distinguish relevant data from other messages that might also be passed through the same port. Examples include traffic and maintenance messages. You might find that it helps the accuracy of the MAT retrieval process to temporarily disable other uses of this port.

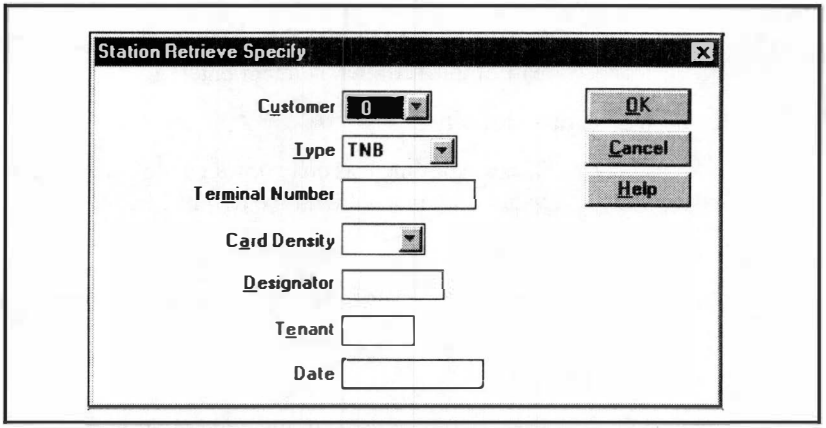
Specifying Data to Retrieve

Advanced users can specify stations or CPND (Name or Administration) data with a one-to-one correspondence of data in certain fields for retrieval.

Station Retrieve Specify

Choose **Synchronize - Retrieve - Specify** option in the Station module to display the Station Retrieve Specify dialog. Enter the data pertinent to those stations on the system that you wish to download. By default, all fields in the dialog are blank. All stations are downloaded if no data is specified.

Figure 29
Station Retrieve Specify dialog



Criteria you can set for station selection include:

Customer

A single-line drop-down text box with a list of the customer numbers defined for the open system. The text box contains the currently selected item.

Type

A single-line drop-down text box with a list of the instrument types (telephones) available for the open system. The text box contains the currently selected item.

Note: Station Retrieval—Using Type = 2000

You can use this Meridian 1 feature to retrieve all 2000 type sets from the Meridian 1 system. In the **Retrieve Specify** dialog, move to the Type box. You can type **2000**, although it does not appear in the list box. MAT will correctly respond to the Type prompt during retrieval.

Terminal Number

Enter a TN or partial TN to retrieve only those stations attached to the part of the Terminal Number entered.

Card Density

This single-line text box allows you to enter the card type. The card type value is associated with the terminal number.

Designator

Enter a designator value in this field to retrieve all stations with this Designator.

Tenant

Enter a Tenant value in this field to retrieve all of that Tenant's stations.

Date

This field accepts a date in the format *mm/dd/yy*, where *mm* is the month in the range 01-12, *dd* is the day in the range 01-31, and *yy* is the two-digit year. This retrieves all stations modified after the specified date.

Note 1: If you request a retrieval from a large Meridian 1 system, using Specify and the Type, it could spend a long time selecting the appropriate stations. If the time-out period (set in system properties) is not long enough, MAT will determine that no more information is being sent by the Meridian 1 and halt the retrieval.

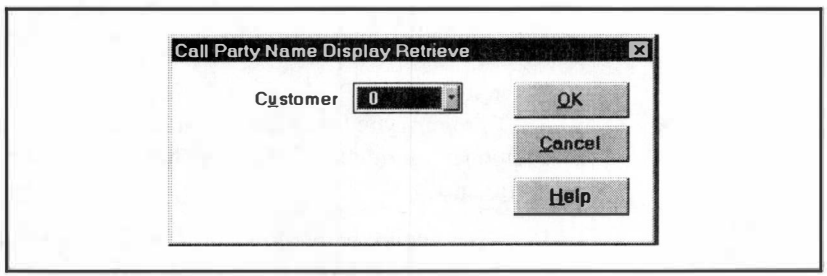
The number of stations retrieved is stated in the Retrieval Log. The time-out parameter can be lengthened to give the Meridian 1 sufficient time to find the appropriate stations to transmit. However, a long time-out period also lengthens the time required by MAT to correctly identify that the Meridian 1 has no more information to send. You need to be patient if you extend the time out period beyond the default values.

Note 2: MAT is able to retrieve selected stations from a Meridian 1 Option 11. You can also retrieve all stations on an Option 11, or choose **Synchronize - Retrieve - Specify**, using a partial TN.

CPND Administration Retrieve Specify

You can retrieve customer-specific CPND Administration data from the Meridian 1. Choose **Retrieve - Specify** in the CPND Administration view window to display the CPND Retrieve Specify dialog.

Figure 30
CPND Retrieve dialog



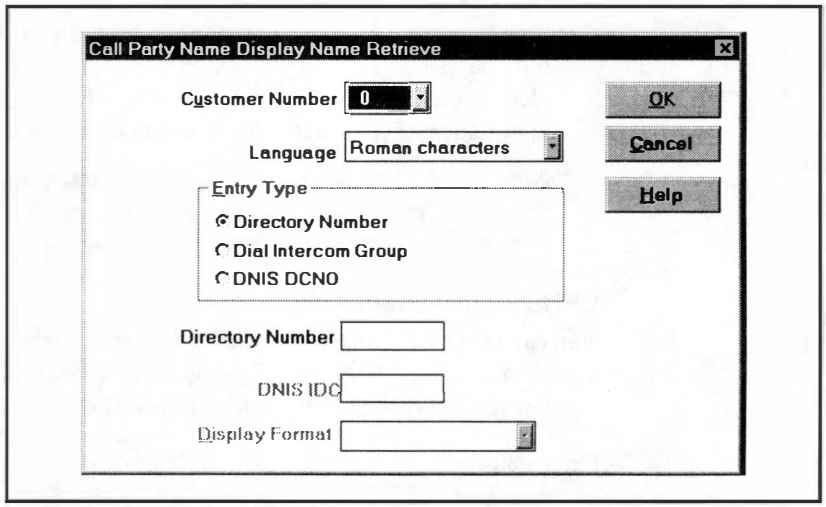
There is a single field in this dialog:

Customer Number: A single-line drop-down text box with a list of customer numbers defined for the open system. The text box contains the currently selected item.

CPND Name Retrieve Specify

If you want to define the CPND name data for downloading, choose **Retrieve - Specify** in the CPND Name view window to display the CPND Name Retrieve dialog.

Figure 31
Name Retrieve Specify



Note: CPND Name Retrieval—Synchronization prompt

When retrieving CPND names from the Meridian 1 (using Overlay 95), MAT prompts you for additional information necessary for retrieval. The additional information differs depending on the software release of the Meridian 1.

Display Format: before Release 19 of the Meridian 1, the Display Format was required for name retrieval. Beginning with Release 19, Display Format can be part of each CPND entry. Therefore, for Meridian 1 systems previous to Release 19, you are prompted for Display Format during name retrieval. For Meridian 1 systems beginning with Release 19, you are prompted for Display Format only if MAT does not find a valid Display Format. If MAT does not prompt for the Display Format, the applicable format is displayed, but not enabled for modification.

The criteria you can set for CPND name selection include the following:

Customer Number

A single-line drop-down text box with a list of the customer numbers defined for the open system. The text box contains the currently selected item.

Language

A single-line drop-down text box with a list of languages you can use for the display. The text box contains the currently selected item.

Directory Number

A numeric field that accepts up to 9 digits that represents the DN for this station. You can double click this field to display the list of currently assigned numbers in the numbering plan for the open system. You can select the number for this station in the Directory Numbers dialog. This is described in "Directory Number Assignment" on page 20.

Display Format

A single-line drop-down text box with a list of the CPND name display formats defined for the open system. The text box contains the currently selected item.

Entry Type

A selection field containing three radio buttons for the type of entry for this station. The choices include:

Directory Number: required to enter Directory Number

Dial Intercom Group: required to enter Group Member

DNIS IDC: required to enter DNIS IDC table number and DNIS IDC

When you click **OK**, you are prompted to set up the communications task.

Upload

This task updates the Meridian 1 data block with selected data from the MAT database. You can select data items in the current list window (Station or CPND).

When you choose **Synchronize - Transmit** in the Station or CPND module, a submenu allows you to select criteria for uploading data to Meridian 1. The submenu contains the following items:

Selected: Upload only selected items in the current list of CPND or stations.

Log: View or clear a log of communications activity.

Selecting Data to Transmit

You can select items in the Station list or CPND list window to upload to the Meridian 1 (refer to "Global Update" on page 45). The MAT data overwrites the data currently residing in Meridian 1 for the selected items. When you choose **Synchronize - Transmit - Selected**, you are prompted to set up the communications task.

Synchronization status and Retrieval

If MAT performs a retrieval, including station and CPND name, the Synchronization Status determines whether the MAT data is updated. In all cases, the Retrieval log contains a record of the retrieval and the results of any comparisons with an existing Meridian 1 system.

— **NEW**: The data for this station should not exist on the Meridian 1 system and the station will not be updated.

— **TRN**: The data for this station in MAT should agree with the data in the Meridian 1. The MAT data is updated to reflect the current configuration on the Meridian 1.

— **CHG, RPL**: The data for this station have been changed since the last time the MAT and Meridian 1 have been synchronized. The station is not updated.

— **OUT:** The MAT user has marked this station for deletion, the current configuration of the station on the Meridian 1 is not relevant.

Communications Logs

All communications activity is recorded in log files that are stored in the current working directory of your MAT administration modules. There are four separate log files. The names follow normal PC conventions, as follows:

— **RTRSTN.LOG**: Station data retrieve

— **TRNSTN.LOG**: Station data transmit

— **RTRNAME.LOG**: CPND data retrieve

— **TRNNAME.LOG**: CPND data transmit

Each of these logs is accessed from the **Log** menu in the appropriate module's **Synchronization - Transmit** or **Receive** menu.

When you choose **Log**, a submenu provides the following items:

View: Sends the log file to the viewer so you can browse or print the log. Log activity is appended to the end of the file, so the most recent activity is at the bottom of the viewer. See "The MAT File Viewer" on page 91.

Clear: Clears the log file. You should do this occasionally so that the file does not get too large.

> ***Note 1:*** There is no limit to the size of the log files, but there is a limit to the size of log files that the viewer can handle. There is a 100-page limit on log files for viewing from **Synchronize - Log - View**.
>
> ***Note 2:*** During station retrieval, you should limit the amount of activity in other Windows tasks. During long station retrievals, or if there is sufficient activity in other Windows processes, the capacity of the communications buffer can be exceeded. This condition terminates the retrieval process to prevent erroneous data from being entered into the station database.
>
> You might notice that the Log window minimizes itself to prevent this occurrence. As the communications buffer starts to fill excessively, the Log window is minimized to allow faster processing of the incoming data. You should wait momentarily and restore the Log window to check the progress of the retrieval.

The Log window will remain on the screen longer if you resize it to contain fewer lines. Similarly, you should minimize the amount of window resizing and moving during station retrieval, since these activities momentarily prevent retrieval activity from processing the incoming characters.

If the capacity of the communications buffer is exceeded, necessary data is lost to MAT. MAT displays a message and terminates the station retrieval process. You will notice that the stations were not added to the MAT PC database.

You can repeat the retrieval to add the new station data. Alternatively, you can choose **Synchronization - Parse Only** to add the downloaded data to the MAT PC database, and continue the retrieval process from where it stopped. It is possible to retrieve a portion of the stations on the system by choosing **Station Retrieve - Specify**.

Viewing large log files

There is currently a 100-page limit on the size of log files and reports that can be displayed on the screen. This limit affects **Synchronization/View/Log** and **Reports** menu items. A message appears to warn you that the file is too large to be viewed in its entirety, and only the first 100 pages are displayed.

You can avoid this limit by:

— Periodically using **Synchronization Log - Clear** to prevent text from old retrievals or transmissions from unnecessarily adding to the size of the log file.

— Testing large reports on a portion of the data, using the Filter feature in the **Report Form** menu. For example, you can limit the report to the first 200 records by opening the report form and selecting the **Options - Report Filter**. To limit the number of records, click the System Fields button, select the **REC_COUNT** field and build the expression **SYS->REC_COUNT <= 200**. If a Report Filter already exists, this clause can be added using the **.AND.** operator.

— Viewing large files with another program. These files are too large for the Windows Notepad, however.

Transmission errors during retrieval

You should inspect the Retrieval Log after performing a synchronization. This log reports the number of stations added, the number of stations compared, and the number of stations with discrepancies from that comparison. In addition, the Retrieval Log might contain warnings from unrecognized data during the transmission. The unrecognized data might be the result of transmission problems.

Compare the expected number of stations to be retrieved to the number of stations actually retrieved. If too few stations were retrieved, look for warnings in the log file that indicate that not enough data was correctly received to recognize the station.

You should also note the number of compared stations. The first retrieval into the MAT PC database should only be adding stations. If any stations were compared, it might indicate a transmission error in the TN field that caused MAT to treat this station as an update to an existing station, instead of creating a new station.

Conversion utility

Overview

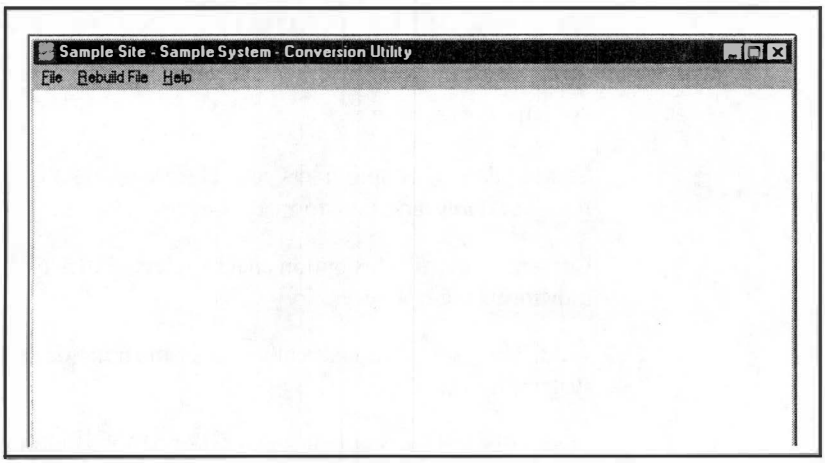
The MAT Conversion utility provides two functions:

- Rebuild of station data to the current MAT file structure. You might need to run this conversion if you have copied system data to your current release directories that was built in an earlier release.
- Import of station data from other applications.

Starting the Conversion utility

When you choose **File - Conversion utility** in the Station Administration module, the MAT Conversion utility window opens.

Figure 32
Conversion utility window



The window initially contains no data in the workspace. The menu bar contains the following drop-down menus:

- File
- Rebuild File
- Help

You can select the desired menu using the mouse (Click) or keyboard (Alt+Bold Character) in the normal way.

File Menu

The File menu provides the following functions:

Import: Lets you insert station data from another database into the current system.

Close: Quits the Conversion utility.

Rebuild File Menu

MAT administration can change the file structure of certain files. This can cause file errors during system maintenance. The Rebuild Files menu lets you check the individual files of system data and convert them to conform with the current file structure being used by MAT, if necessary:

All Systems: This option automatically searches the PC system for MAT systems and transforms selected files, if necessary.

Auto: This option automatically checks and transforms all files for each system, if necessary.

Select Files: This option lets you select MAT data files that will be checked for all systems, and transformed, if necessary.

Current System: This option checks selected files of the current system and transforms them if necessary:

Auto: This option automatically checks and transforms all files for the current system, if necessary.

Select Files: This option lets you select MAT data files that will be checked and transformed for the current system

Help Menu

The Help menu provides on-line help for the Conversion utility.

Rebuilding Files

The MAT administrator can modify the file structure used in MAT. This can result in File Errors during MAT processing. When this occurs, you can use the Conversion utility to rebuild the files, making their structure correspond with the current MAT file structure. In practice, the Conversion utility would check the structure of selected files and rebuild only if necessary.

Accessing the Files

To access the MAT data files for the Rebuild option, choose **Rebuild File - All Systems** or **Rebuild File - Current System**. Each option displays a cascading secondary menu that lets you choose to automatically detect files that require rebuilding or to manually select files for rebuild.

If you choose to select files, a Select Files dialog is displayed. This dialog contains a multi-selection list of files that comprise the MAT data. Selected files are indicated by highlight bars. Use the Windows vertical scroll bar to browse the entire list of files. Mouse click an item to toggle its selection status.

Click **OK** in the Select File dialog to start the rebuilding task for the selected files of all systems or the current systems as required.

Monitor Rebuilding Files

The Conversion utility checks all the selected files in each system and rebuilds all files it finds that require rebuilding. During this task, a status dialog is displayed that informs you of the progress of the task.

Upon completion, a status of **Success** is displayed. At any time you can click **Cancel** in the Status dialog to halt the rebuilding task. This might result in some files not being rebuilt. Another attempt at Rebuilding Files would now complete the task.

Importing Station Data

Station data is stored in accordance with the file structure and database rules defined in the MAT application. The Conversion utility provides a merge function (Import) that lets you update station data, and add new stations, from a data source other than a Meridian 1 (data defined in DBASE or CPLUS, for example).

Note that the merge function uses the DN as the key so that any imported data must include a DN field. Also note that, if the supplied DN is not currently used in the open system, the record will not be added unless a valid unique Location field (LOC) value is supplied. This means that to create a new record you must supply both a currently unused DN and a unique Location.

Data for import must have a Fields Definition file (default but not limited to files with.FLD extension) as well as a comma delimited data file (default but not limited to files with .TXT extension). The field file will identify which items in the data file belong to which MAT fields.

Note that the Fields Definition file must have the exact field names as defined in MAT. These can be found in the Select Data Field dialog in the Global Update function. The fields will be in the order in which the data is listed in the data file.

Considerations When Merging Key Values and Features

If you want to add or modify features for a particular record you must identify a "FTR" field for each feature being modified. The values must be as used in Meridian 1 as identified in the Features dialog when accessing multi-line telephone sets. For example, Call Forward when the forward DN is a four-digit number would be CFW 4 in Meridian 1.

If you want to add or modify key functions to a single line telephone, you must identify the key as KEY n, where n is the key number (include the space). If the value represents a Single Call Ringing key, then the field entry would be SCR nnnn, where "nnnn" is the selected DN.

Select a Data File

To select data to import, choose **File - Import** in the Conversion utility to display the Select an Import Text File dialog. The Text File Selection dialog lets you select the location and file name of the desired data file. By default, the dialog tries to locate files with .TXT extension, but you can actually use any extension in the File Name text box.

Click **OK** in this dialog to accept the data file name selection and display the Field File Selection dialog.

Select a Field File

Click **OK** in the Select an Import Text File dialog to display the Select an Import Field File dialog. The Field File Selection dialog lets you select the location and file name of the desired field definition file. By default, the dialog tries to locate files with .FLD extension, but you can actually use any extension in the File Name text box.

Click **OK** in this dialog to initiate the merge function.

Perform the Merge

When you have completed selection of the data and field files for merging to the current system data, click **OK** in the Select an Import Field File dialog to initiate the merge function and display a progress status message box that has a percent completion bar. This dialog has a **Cancel** button that will stop the merge before completion. When the progress bar indicates 100%, the **Cancel** button changes to **OK**. Click **OK** to return to the Conversion utility window.

The data is now part of the system and is available through the Station Administration module.

Example of Import Data

A typical import file might contain the following data:

- "3452","Robert","Williams","Accounting"
- "3497","Marie","Astor","Marketing"
- "8732","Lee","Smith","Accounting"
- "8743","Arthur","McKinley",Facilities"
- "3469","Mary","Owens","Marketing"

where each record has four fields which would be defined in a separate file, as follows:

- DN
- FNAME
- LNAME
- DEPT

Note that the merge function uses the DN as the key so that any imported data must include a DN field. Also note that, if the supplied DN is not currently used in the system, the record will not be added unless a valid unique Location field (LOC) is supplied.

Generating Reports

Overview

The Report Generator module lets you create, view, print, and change custom reports. Access the Report Generator module by choosing **File - Reports** in the CPND and Station Administration modules.

MAT supplies several standard report forms for reporting MAT data. In addition, the Reports Generator module contains a form editor that lets you create custom report forms or edit existing forms. It also contains a viewer that lets you print reports or browse reports on the screen. A report executor lets you run the reports to the viewer for screen display, to a file, or to a printer. Custom selectable criteria allow you to tailor the report listing.

Reports Considerations

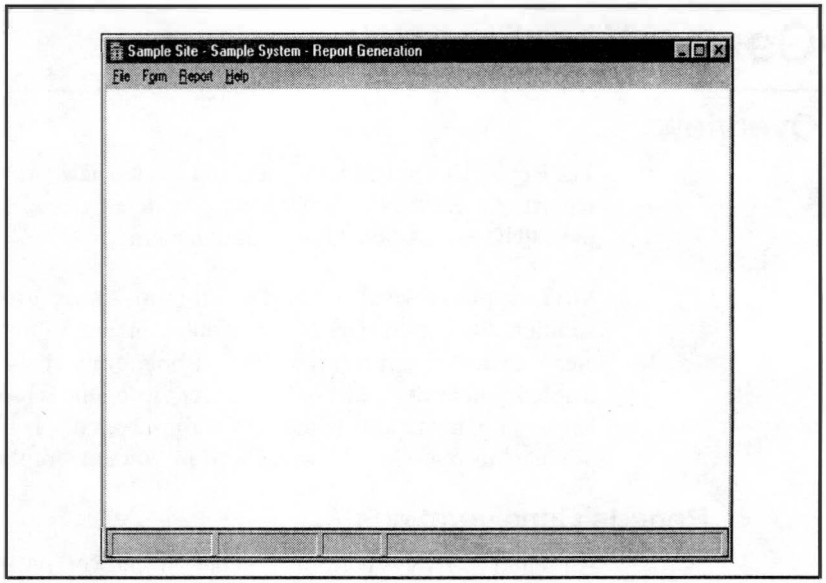
All report activity is performed in the current working directory—the system subdirectory. All forms are stored in this directory with a ".FRM" extension. Exported reports are also saved in this directory and are automatically given a ".TXT" extension. This means that you need supply only the *filename* (up to eight characters) when prompted to save a report to a file.

The MAT Report Generator requires that a printer be configured in the Windows software environment, although it is not necessary for the PC running MAT to be equipped with a printer.

Starting the Reports Function

Choose **File - Reports - Report Generator** in the Station or CPND module to display the MAT Report Generation window appears.

Figure 33
Report Generation window



There is no data in the work area when the window is first displayed. The window contains a menu bar with drop-down menus that let you perform global actions within the Report Generator:

— File Menu

— Form Menu

— Report Menu

— Help Menu

File Menu

The only function available from this menu is the following:

Close: Closes the Report Generator.

Forms Menu

This menu lets you choose a current report form or create a new form.

New Report Format...: Lets you design a new form for a report.

Open Existing Report Format...: Lets you open a predefined form for the selected data in the system.

Reports Menu

This menu allows access to the report executor.

Run Report...: Displays a dialog that lets you access a report form that you can run (to the screen, to a printer, or to a file).

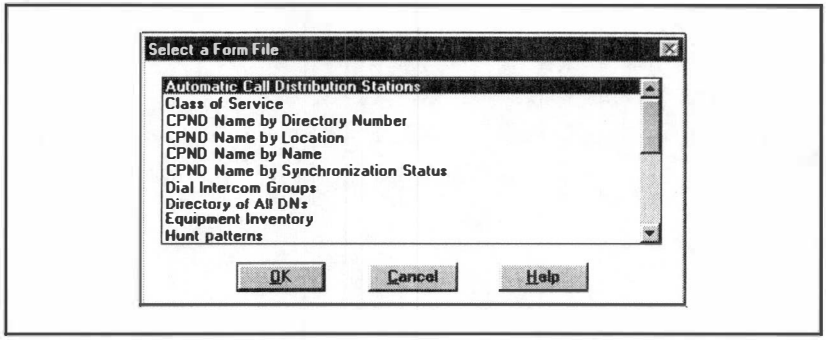
Running Reports

Running a report involves selecting a report to run and selecting a destination for the report. Selection criteria for the records you wish to choose are contained within the report form. If you desire different criteria, you can edit the form or create a new one. See "Report Criteria" on page 115. You can send a report to a viewer for screen display, to a file, or to a printer.

Select a Report

Select a report to run by choosing **Report - Run Report** in the Report Generator. **Run Report** displays a Select a Form File dialog with a single-choice scrollable list of report forms on your system.

Figure 34
Select a Form File dialog



Some reports in the list may be reports you have defined or modified for your needs. Default reports supplied with MAT include:

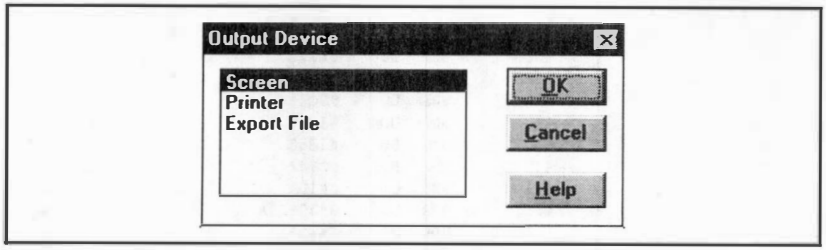
- Automatic Call Distribution Stations
- Class of Service
- Dial Intercom Group
- List of Power Failure Phones
- Message Centers
- Private Line
- Ringing Number Pickup Group
- Speed Call Groups
- System Speed Call Group
- Telephone Directory by Department
- Telephone Directory by Directory Number
- Telephone Directory by Location
- Telephone Directory by TN
- Telephone Directory by Name

The currently selected form is highlighted. Select a form and click **OK** to run a report using the currently selected form.

Select a Destination

When you have selected a form and have chosen **Report - Run Report**, an Output Device dialog provides a list of possible destinations for the report.

Figure 35
Output Device dialog



The dialog displays a list of destinations for the report. See "View Report" on page 87.

- Screen
- Printer
- Export File

Select a destination and click **OK** to run the selected report.

Print Report

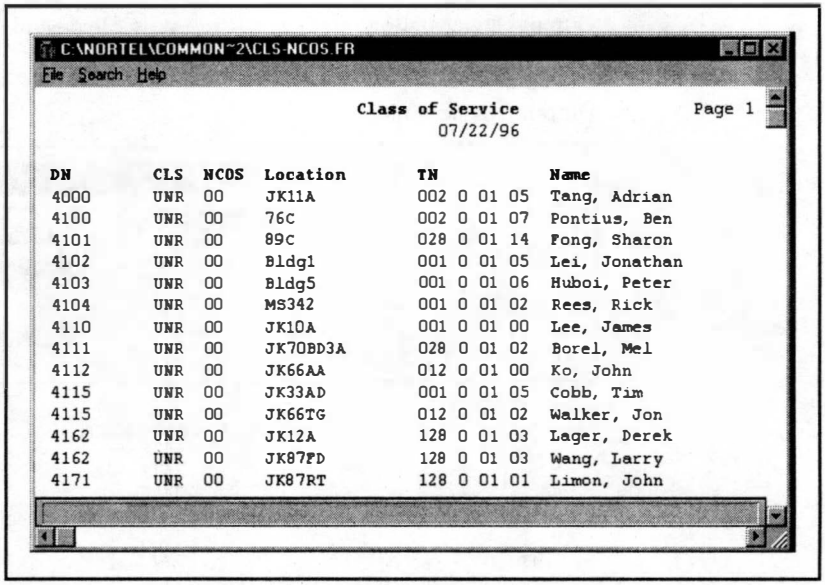
If you selected **Printer** for the report destination, the MAT Report Generator uses the Windows print function to direct the report to its default printer. The default printer for the report is identified in the form when it is created or edited. If you want to check or change the printer destination or setup you must do this from the Form editor before you run the report. Alternately, you can send the report to the screen and print from the viewer.

During printing, a Printing status box is displayed. You can stop the print job by clicking the **Cancel** button. A Report Viewer status box alerts you when the job is finished. Click **OK** to return to the Report Generator.

View Report

If you select **Screen** for the report destination, a viewer appears with the report in the work area.

Figure 36
Example Report in the Viewer



This Viewer has the following menus:

File: lets you display a report summary, print the report, or exit the viewer.

Search: lets you find text contained in the report.

Help: lets you access on-line help for the viewer.

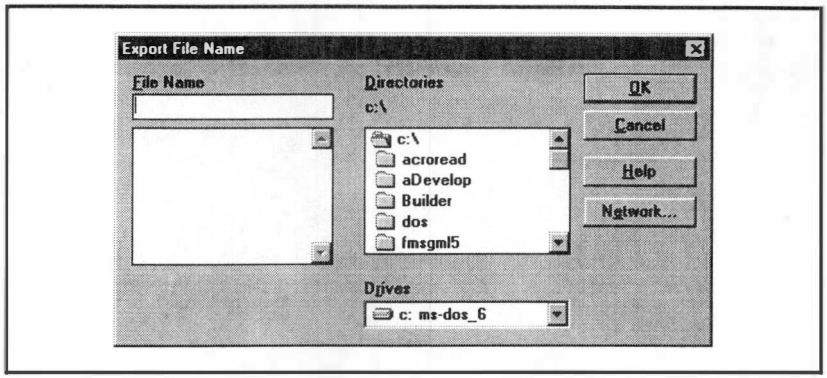
See "The MAT File Viewer" on page 91.

You can print the report from the viewer to the printer defined in the report form, or to a printer you choose from the Viewer. You can also save the report to a file selected from the Viewer.

Export Report

If you chose **Export File** for the report destination, the report output can be saved in a comma-delimited ASCII file. **Export File** displays a dialog that lets you choose a name for the report file.

Figure 37
Export File Name dialog



You can enter a filename up to eight characters. Click **OK** to send the report to the Viewer. See "View Report" on page 87. *Filename*.TXT, a comma-delimited text file with the *Filename* as entered in the text box, is saved to the current PC directory.

The MAT File Viewer

Overview

The Viewer lets you browse, print, and save MAT files accessed during Station Administration tasks. You cannot access the Viewer as a separate module. It is invoked when you attempt to print or display files created during MAT database administration. The files that can be viewed include:

— Reports

— Designation Strips

— Station Validation Log

— Communication Logs

— Station and CPND Administration list views

Viewing a File

When the File Viewer starts, the scrolling Viewer window contains the data from a file created during MAT database administration. The Viewer does not allow editing, so the viewed data is in a fixed format.

You can browse and print the data using the menus, as follows:

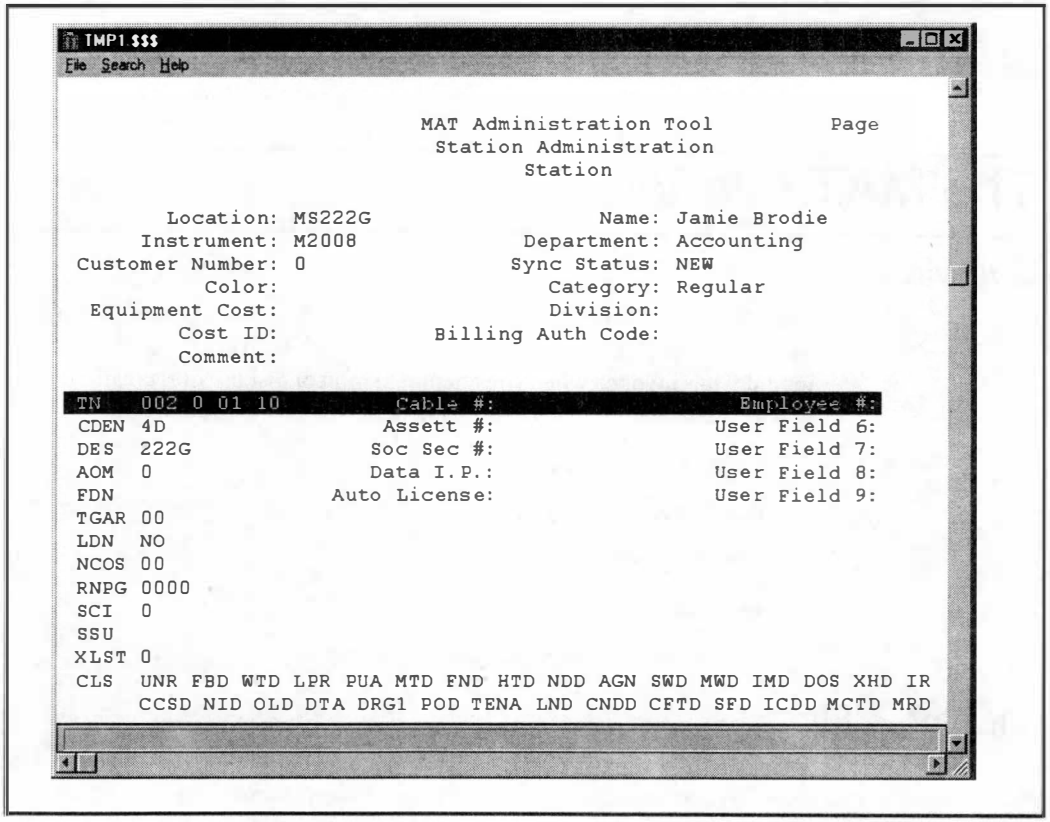
Viewer File Menu

The **File** menu lets you display a file summary, save the file to a selected directory, print the file, or exit the viewer.

Save as: Lets you save the displayed data as a text file to your PC system.

Summary: Displays a file summary of the displayed data.

Figure 38
File Viewer window



Print: Sends the file to the default printer (the printer is normally the default printer as defined in Windows). However, for reports, the printer is defined in the form.

Printer Setup: Allows you to select a print destination and set printer options.

Close: This option closes the Viewer and returns to the window that invoked it.

Viewer Search Menu

The **Search** menu lets you find a text string that might be contained in the displayed data.

Find: Lets you define a text string to find. The **Find** function is not case sensitive.

Find Again: Lets you find the next occurrence of the currently defined string. This option is dimmed until you have searched for a string.

Changing Viewed Data

The data displayed in the viewer is in a fixed format, defined in MAT, for the file being viewed.

Browsing the File

The MAT Viewer is a line viewer with the current line highlighted. You can use the arrow keys or <Page Up> and <Page Down> to move the highlight one line or one screen at a time. You can also use the Windows vertical scroll bars to scroll the report, moving the highlight bar as you scroll. The Windows horizontal scroll bar lets you browse entire lines when the lines are too long for the window.

Use the **Search** menu to find selected text. A successful **Find** highlights the line containing the search text.

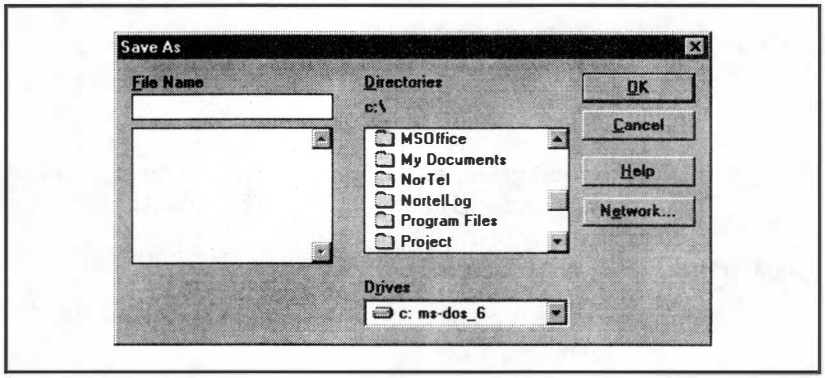
Save As

The file is displayed in the Viewer with a default file name in the title bar. You can save the data as an ASCII text file. Choose **File - Save As** to save the current file with a different name or location

Select a File Name

The Save As dialog is the standard window used to specify the file name and file location (for a full description of this dialog, refer to your Windows documentation). The dialog contains a single-selection scrollable drop-down list of disks that your PC can access. Select a disk to display the list of directories on the disk in a single-selection scrollable Directories list field. Select a directory to display a single-selection scrollable list of files in that directory. Select an item from the File Name list or type in a file name.

Figure 39
Save As dialog



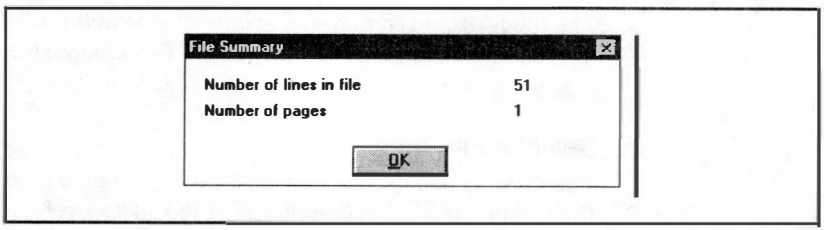
At any time, click **Cancel** to return to the Viewer without saving the file. Click **OK** to save the file with the specified file name.

The saved file uses the current default Windows font for character formatting. Any character formatting in the original file (from a Report, for example) is not saved.

Display a File Summary

Choose **File - Summary** to display a File Summary status box.

Figure 40
File Summary dialog



The summary gives the number of lines for a text file (or number of records for a database report file) and the number of pages in the file. Click **OK** in the status box to return to the Viewer.

Print from the Viewer

You can print the file (exactly as displayed) to a default printer directly or you can select another printer for the task. Choose **File - Print** to print the contents of the Viewer to one of the following destinations:

— If the Viewer is displaying a report, the print destination is the destination defined in the report. If your PC cannot find this printer, MAT displays a status message. Click **OK** in the Status message box to return to the Viewer.

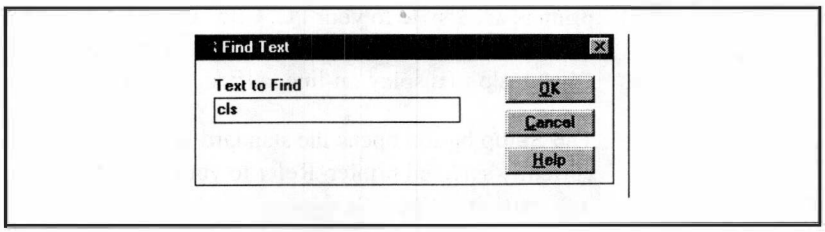
— If no printer is defined in the file being viewed, the print destination is the current printer defined in Windows. This can be the Windows default or a printer selected in the **File - Print Setup** option of the Viewer.

A progress status message is displayed while the file is printing (or sent to a print spooler if applicable). Click **Cancel** in the Status box to stop printing. When the task is complete, MAT returns to the Viewer window.

Search the File

Choose **Search - Find** to display a dialog that lets you enter text you wish to find. If **Find Again** is available, the dialog contains the previous search data.

Figure 41
Find Text dialog



Click **OK** to accept the data in the dialog and proceed with the search. Click **Cancel** to return to the Viewer window. Click **Help** to display on-line help for this dialog.

The text box accepts any input. The find function is not case sensitive.

The Viewer highlights the line containing the first occurrence of the **Find** text. The **Find** function always starts at the top of the report, regardless of the current cursor position.

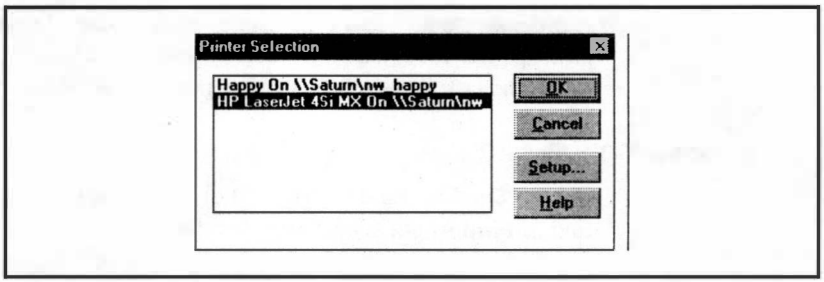
When the first search is complete, **Search - Find Again** is available. If you choose this item, the highlight bar moves to the next occurrence of the text. You can repeat this until a status message indicates that are no more occurrences. Click **OK** in this status box to return to the Viewer.

When you finish searching, click **Cancel** to return to the Viewer.

Printer Setup

To define the printer destination and setup from the Viewer, choose **File - Print Setup**.

Figure 42
Printer Selection dialog



The Printer Selection dialog contains a single-selection scrollable list of printers accessible to your PC. Click **OK** to accept the selected printer and return to the Viewer window. Click **Cancel** to return to the Viewer window. Click **Help** to display on-line help for this dialog.

The **Setup** button opens the standard Windows printer setup dialog for the currently selected printer. Refer to your Windows documentation for information on Print Setup.

Click **Cancel** in the Print Selection dialog to return to the Viewer without changing the Print setup. Select a printer and click **OK** to set the selected printer as the Viewer default and return to the Viewer. This new printer destination is only valid for this viewer session. The report form still retains the original print setup.

Exit the Viewer

Choose **File - Close** to close the Viewer and return to the Report Generation window.

Designing Report Forms

Overview

The MAT application includes several pre-designed forms you can use to run the most common reports. MAT also includes a Report Generator module that includes a Forms editor. The editor lets you modify existing forms or create your own forms for customized reports.

The Forms editor lets you generate a customized layout for a report by piecing together predefined report sections.

Form Section Concepts

The Report Generator organizes a report by sections. A report form can contain one or more sections:

— Report Header

— Page Header

— Sort Header(s)

— Detail Section

— Page Footer

— Sort Footer(s)

Each of these sections is optional, but a form must contain at least one section and can have only one of each type. Each section allows an internal free layout of data. The only restriction is the position a section occupies on the report in relation to the other sections.

When you insert a new section in a form, it automatically positions itself correctly relative to other sections. This position is indicated in the Editor window by a line with the section title printed on it. This line is not part of the form, it merely serves as the top boundary of the section it indicates. The list above indicates the order in which the sections will appear in the form.

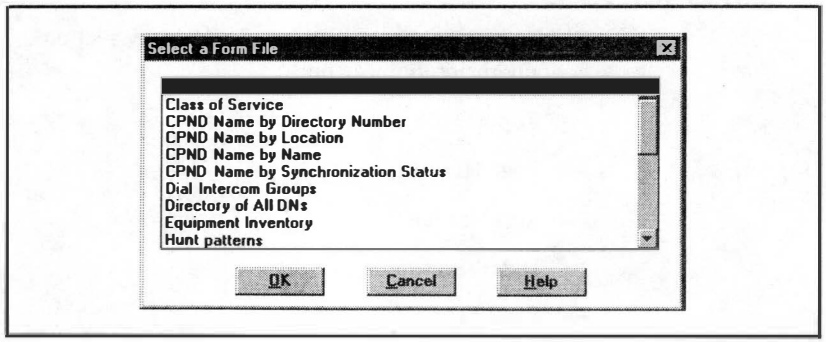
Arranging sections within a form is described in "Changing Sections" on page 104.

The Forms Editor

The Forms Editor is an application within the Report Generator that lets you design and customize a report using the current database.

Choose **Form - New Report Format** to display the Forms Editor, with a blank form in the working area. Choose **Form - Open Existing Report Format** to display a dialog that lets you select from a list of forms for the current system database.

Figure 43
Select a Form File dialog



The currently selected form is highlighted. Select a form from the list and click **OK** to invoke the Forms Editor. The Forms Editor contains a menu of actions to perform:

File Menu

This menu contains commands for saving the current report file and specifying the report parameters.

Select Report View: Lets you select the key selection criteria that determine the content of the report at runtime.

Save: Store the current report form to a file. If it is a new form, you are prompted for a filename (up to eight characters followed by a period and an extension of up to three characters).

Save As...: Store the current report form to a file. Report form files must be stored in the common data directory. MAT will not allow changes to the path for these files.

Printer Setup: The Windows default printer is automatically assigned to the current form when you save it. This selection lets you select a different printer and printer configuration to be associated with the current form from a list of installed printers.

The printer options that you select here determine the width and height of the report. The width of the report is indicated by the length of the section separation lines in the form editor window.

Exit: Close the Forms Editor and return to the Report Generation window. If the current form has not been saved since the last change, you are prompted to save it before exiting the editor.

Edit Menu

This menu contains miscellaneous edit and cursor navigation functions:

Insert Line After/Before: Puts a blank line following/preceding the current cursor position.

Delete Line: Removes the current line, moving all successive lines up.

Highlight Off: Turns off any highlighting in the current form (lets you deselect text and fields).

Beginning/End of Line: Moves the cursor to the left/right end of the current line.

Next/Previous Word: Moves the cursor to the beginning of the next/previous word or field in the form, going to the next/previous line if necessary.

Section Menu

This menu contains commands to insert, edit, and delete report sections.

New...: Lets you add a section to the current form. Sections include:

— Report Header: Appears at the top of the report only

— Page Header: Appears at the top of each page of the report

— Detail Section: Defines data to be reported

— Page Footer: Appears at the bottom of each page of the report

— Sort *n* Header: The *n*th sort criterion field for the report (*n* = 1 - 9)

The section title is displayed at the current position of the selected section on the form. This line indicates the Forms Editor cursor location. It will not appear on the printed form.

Edit Current...: Lets you define the layout of the section in which the Forms Editor cursor is currently positioned. Displays a dialog containing check-boxes for defining section layout at runtime. Choices include:

— Start new page before this section

— Start new page after this section

— Do not include blank lines

— Suppress trailing (or leading) blanks in a field

— Titles on every page of the report

Delete Current...: Removes the section in which the cursor is currently positioned.

Sort Field...: Lets you change the current sort field selection. This selection is not available unless the form has sort fields defined (use the **Section New** function to insert sort fields).

Break Field...: In a typical report, the break field is the same as the sort field. This selection lets you define a field for a section break that is not a sort field.

Field Menu

This menu contains options to insert, modify, delete, and maintain fields.

Insert New Field: Displays a submenu that lets you choose a field type for insertion into the form at the cursor position. Field types include:

— **Data Field**: Displays a list of data fields in a record of the system database

— **Calculation Field**: Displays a box for entering a formula for the field

— **System Field**: Displays a list of MAT system fields

Edit Current Field...: Lets you modify attributes for the current field.

Edit Field Expression...: If you have a calculated field at the cursor position, this selection lets you modify the formula.

Options Menu

This menu lets you define the appearance of the report and select data records for inclusion in the report.

Report Parameters...: Brings up a dialog that allows you to specify certain report parameters:

— Name of the report (This is not the Windows filename.)

— Margins for the printed page

— Output of some trial records for form layout adjustment

— Default date format for input and during execution

Report Filter...: This option allows you to enter a filter criteria for the report. Each data record is tested with the expression that you provide here. A record is selected only if this expression evaluates to a TRUE value. For example, if the expression was *DN->amount>1000*, then only records with a DN higher than 1000 are included in the report.

Fonts Menu

This menu contains formatting commands for highlighted characters (and field values) at runtime.

Normal: Removes character formatting, if any)

Formatting: Normal, **Bold,** Underline, *Italic*, Superscript, Subscript, ~~Strike~~.

Fonts: Lets you select font and size for highlighted characters and fields. The report generator allows only fixed space fonts. You should be careful that columnar text uses the same font size and spacing to maintain column alignment.

Changing Sections

Here is an example of a blank form with all sections in place. The sections are divided by a line labeled with the section name. These lines are place indicators only and will not appear on the printed report.

The **Section** menu lets you change the sections as described below.

Insert a Section

To insert a section in a form, choose **Sections - New** with the cursor anywhere in the Forms Editor window. This displays a Select New Section dialog with a list of available sections (all sections that do not appear in the form).

The currently selected Section is highlighted. Select a section and click **OK** to insert the section in the current form.

At insertion time, each section contains one blank line. Use the **Edit - Insert Line After/Before** functions to change the section size at any time while the cursor is in the work area of the section (below the section title line and above the next section title line).

Define Section Parameters

You can set runtime parameters for the section at the current cursor position. Choose **Section - Edit Current** to display an Edit Section Info dialog with check-boxes that let you set or clear section parameters.

Figure 44
Example blank report form

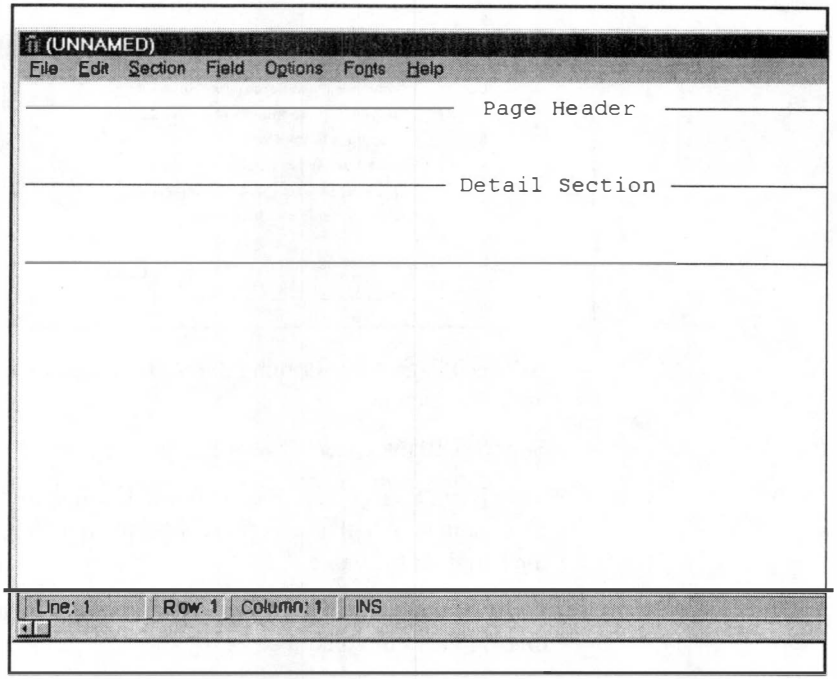
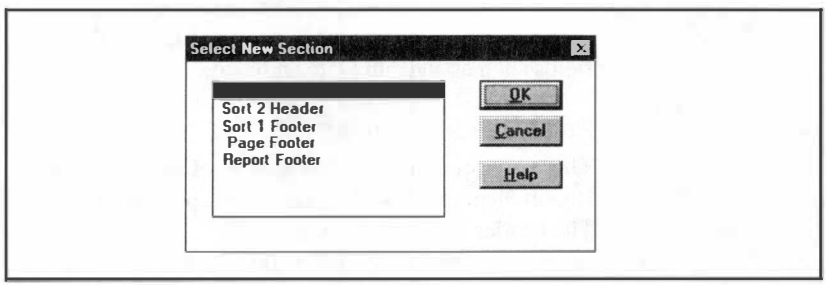


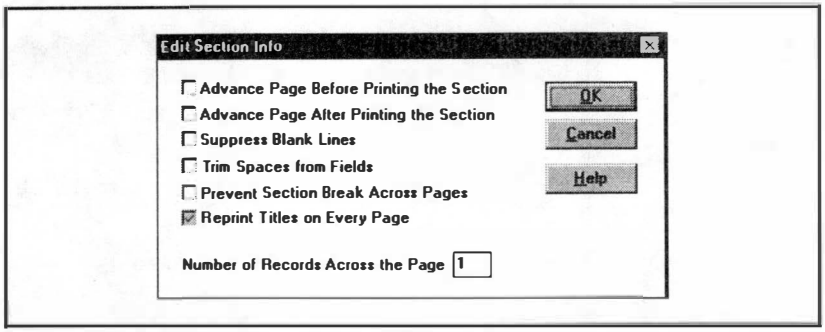
Figure 45
Select New Section dialog



Select the appropriate check box to toggle parameter selection. The parameters include:

— Advance Page Before Printing the Section: The section is printed at the top of the next page.

Figure 46
Edit Section Info dialog



— Advance Page After Printing the Section: Causes a printer Form Feed after this section.

— Suppress Blank Lines: Causes blank lines not to be printed.

— Trim Extra Spaces from Fields: If a field value is shorter than the field maximum length, this selection causes the field length to be truncated to the length of the value.

Note: If you are using a columnar format, this parameter might cause misalignment of columns.

Report Header / Footer

These are printed only once, at the beginning/end of the report. The header is generally used as a title and description of the report. The footer might be used as a report summary. A report header and footer can contain free text and fields such as System Date and Time.

Page Header / Footer

These are printed at the top/bottom of every page in the report (beneath the Report Header on the first page and above the report footer on the last page). The header might contain text such as Report title, column headers and any other pertinent text as well as fields such as System Page Number, Date, and so on. The footer might be used for page numbers and page by page field totals or other pertinent data or text.

Sort Header / Footer

Each of these sections indicate a field that the report will use for a sort break. The field you choose is not printed. You can place text or fields or both text and fields at these section breaks to describe the sorts being used in the report.

Detail Header

This section contains a list of data for each record of the database, selected and sorted according to defined criteria.

Edit a Form

Text and data are added at the current position of the cursor within the form. Move the cursor using the mouse or the keyboard arrow keys. The status line at the bottom of the window gives the cursor position by line (row) down and character (column) across. The **<Ins>** key toggles the insert/overtype mode. The status line indicates **INS** for insert mode (text moves everything to the right of the cursor to the right) or **OT** for overtype mode (text replaces existing text at the cursor position).

Type to insert text. There is no automatic line wrapping. If you insert a carriage return (**<Enter>**), the cursor is returned to the beginning of a new blank line.

You can use the **Edit** menu to move the cursor within a line, as follows:

- **Start of Line**: left end of line
- **End of Line**: right of the last character on the line
- **Next Word**: first letter of the word to the right of the cursor
- **Previous Word**: first letter of the word to the left of the cursor.

To insert and edit a field at the current cursor position, use the **Field** menu.

Insert a Field

Choose **Field - Insert New Field** to display a submenu with a list of data field types to paste at the current cursor location. This option is not available when the cursor is positioned on a section separation line or on an existing field.

The selected field appears at the current cursor location as a series of "x" symbols that represent the maximum number of characters in the field, as defined in the database. You can delete any number of field symbols to reduce the field length. To increase the field length, position the cursor on any field symbol except the first one, and type spaces. You can change the current field attributes by choosing **Field - Edit Current Field**.

Insert Data Field

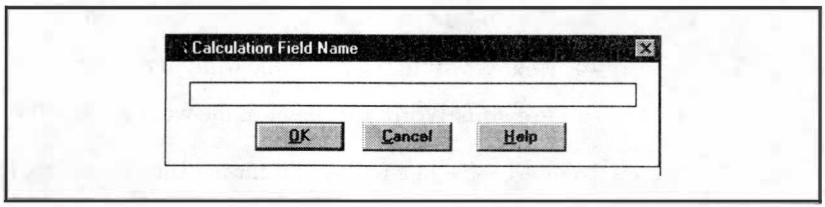
A data field is one field in each record of the current database. If you choose **Field - Insert New Field - Data Field**, a list of data fields is displayed in a Select Data Field dialog. See 'Select Data Field" on page 47 for further details.

Click **OK** to paste the selected field into the form at the current cursor position.

Insert Calculation Field

A Calculation field contains an expression that is a combination of data, functions, and operators. At runtime, the expression result is output for each record. You must supply a name for the field as well as the expression to be evaluated. The **Field - Insert New Field - Calculation Field** option first prompts you for the name of the field in a Calculation Field Name dialog.

Figure 47
Calculation Field Name dialog



You can enter up to 48 alphanumeric characters (not blanks) in the text box to represent the calculated field name.

Click **OK** to enter an expression for the calculated field. The procedure for expression entry is the same as for 'Define Selection Criteria" on page 46.

Insert System Field

A System field contains MAT system-dependent information, such as date, time, report page number, and record count. This information is typically in the report or page header or footer. One System field, WRAP_OVERFLOW allows a data field to overflow to the next line or lines. For example, a comment field of 30 characters could contain 10 characters in the data field itself and ten in each of two WRAP_OVERFLOW fields (generally placed directly under the data field itself).

If you choose **Field - Insert New Field - System Field,** a list of System fields is displayed in a Select System Field dialog. The procedure is the same as in 'Select Data Field" on page 47.

Click **OK** to paste the current highlighted field in the form at the cursor position.

Edit Field Attributes

This option, available by choosing **Field - Edit Current Field,** is used to edit the attributes for the current field. This option is available only when the cursor is positioned on a field. The field name is displayed in the status bar of the form window. The option displays a set of attributes that can be modified for the current field. You can modify the field attributes as needed.

The attributes that you can modify depend on the type of field. Field types include:

— Text (alphanumeric characters)

— Numeric (numbers, including thousand separators and decimal point)

— Date (date in predefined formats)

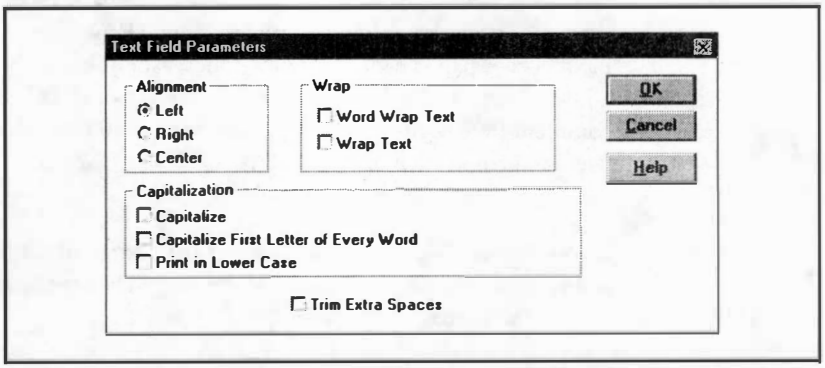
Edit Text Field Attributes

If the cursor is located within a text field and you choose **Field - Edit Current Field,** a Text Field Parameters dialog displaying the current attributes for the field appears.

The following parameters can be modified:

Field Alignment: By default, text data at runtime is left-aligned. You can use the radio buttons to select left, center, or right alignment.

Figure 48
Text Field Parameters



Wrap: If the field length on the form is too short to accommodate the data at runtime, you can select a wrap option to run the text to a WRAP_OVERFLOW System field that you have already defined. The Wrap option breaks at the end of the current field, and the Word Wrap option breaks at the end of the last word before the end of the field. The default attribute has no wrap option selected.

Capitalization: By default, all text in the data field is printed as stored in the database. You can change this to all capitals, leading capitals, or all lower case, by selecting the appropriate check-box.

Trim Extra Spaces: This check-box trims the field length to the length of the data that is entered at runtime.

> *Note:* If you are using columns, this option might cause columns to become misaligned.

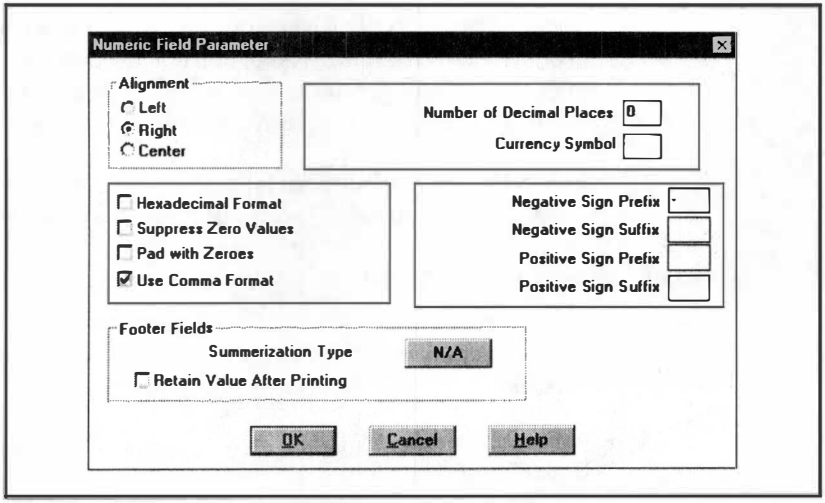
Edit Numeric Field Attributes

If the cursor is located within a numeric field and you choose **Field - Edit Current Field**, a Numeric Field Parameters dialog displaying the current attributes for the field appears.

The following attributes can be modified:

Field Alignment: By default, numbers are left-aligned at runtime. You can use the radio buttons to select left, center, or right alignment.

Figure 49
Numeric Field Parameters dialog



Number of Decimal Places: If the field contains a real number, this option lets you select the number of digits printed to the right of the decimal point.

Currency Symbol: If the field represents money, you can use this option to define the currency symbol.

Sign Representation: This option lets you select how to represent negative and positive number values. You can enter a character for prefix and suffix for both positive and negative numbers.

Zero Values: Check the Suppress Zero Values check-box to suppress printing this field if it contains a value of zero. Check the Pad with Zeroes check-box if you wish to align the number to the right of the field and fill with leading zeroes. Check the Use Comma Format check-box to insert a comma between thousand values in the field.

In addition to these attributes, you can edit the following attributes for fields that are located in the footer section of the report:

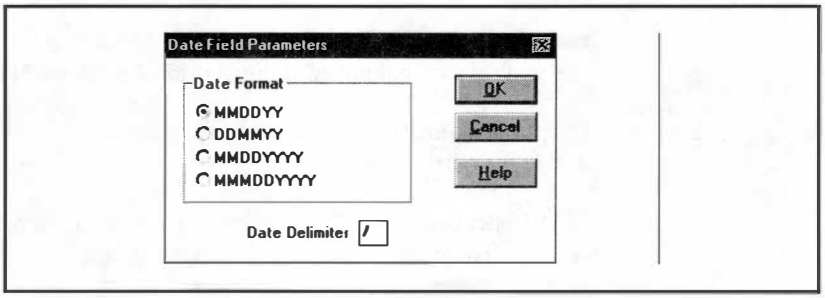
Summarization Type: A numeric field in the footer could require the report to print a summary value. This option is a function selector that displays a list of possible summary values, such as total, average, maximum, minimum, or count. You can also print the actual value for the field by selecting Value.

Retain Value After Printing: If the footer is a page footer, you can check this option to print "running" values instead of the value for each page.

Edit Date Field Attributes

If the cursor is located within a Date field and you choose **Field - Edit Current Field**, a Field Name Edit dialog displaying the current attributes for the field appears.

Figure 50
Date Field Edit dialog



You have a choice of four formats for the Date output, selectable by radio button:

MMDDYY
DDMMYY
MMDDYYYY
MMMDDYYYY

You can also define the date delimiter by entering a required one-character delimiter in the Date Delimiter text box (/ or - , for example).

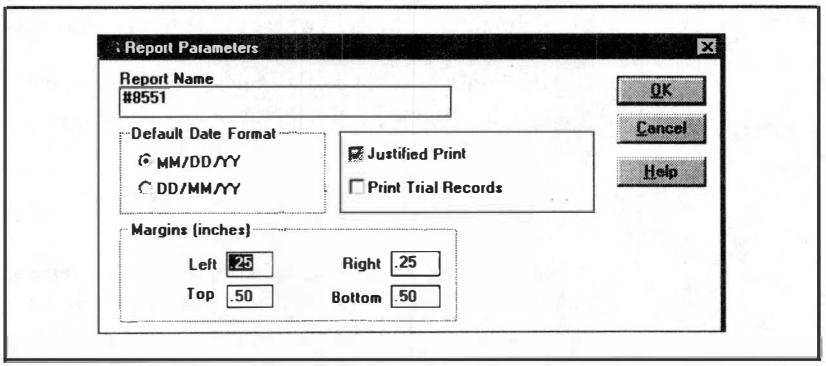
Edit Calculation Field Expression

This option is available only when the cursor is positioned on a calculation field and you choose **Field - Edit Field Expression**, or when you are first inserting a calculation field in the form. The option shows the existing calculation expression, if any, in a dialog and allows you to make modifications. The action of this dialog is the same as that for "Define Selection Criteria" on page 46.

Setting Report Parameters

The Forms Editor **Options** menu lets you set parameters for the report. These parameters are stored with the form and will be operative at runtime.

Figure 51
Report Parameters dialog



The parameters are defined in a dialog when you choose **Options - Report Parameters** in the Forms Editor. Parameters include the following:

Report Name: A text box that lets you enter up to 36 contiguous alphanumeric characters. This name is used in the MAT system as the name for the report and the form. This is not the same as the Windows filename.

Default Date Format: A pair of radio buttons that lets you define the format in which dates are printed at runtime. The two formats are MM/DD/YY or DD/MM/YY.

Print Trial Records: Run the report with just a few records. This enables you to check that the form generates a report with a suitable appearance and layout.

Margins: Four text boxes that let you set the page margins. Enter numeric data only, and ensure that the page layout is valid.

Character Formatting

You can set the appearance of printed text using the **Fonts** menu. By default, text and fields are output in the Windows default font with Normal (unmodified) attributes.

A selection from this menu acts on the selected data. To highlight data (text and fields) place the cursor at one end of the data to be highlighted, hold down the left mouse button and move the cursor to the other end of the data. To turn off highlighting, click anywhere in the form that is not highlighted.

Use the **Fonts** menu to display a list of character enhancements. Select one to print the highlighted text with that enhancement. Enhancements include the following:

Normal, **Bold,** Underline, *Italic*, Superscript, Subscript, ~~Strike~~.

When you apply an enhancement, highlighting is removed. If you desire more that one enhancement for any text, you must highlight the text again and select another enhancement. To remove an enhancement, highlight the text and choose **Font - Normal**.

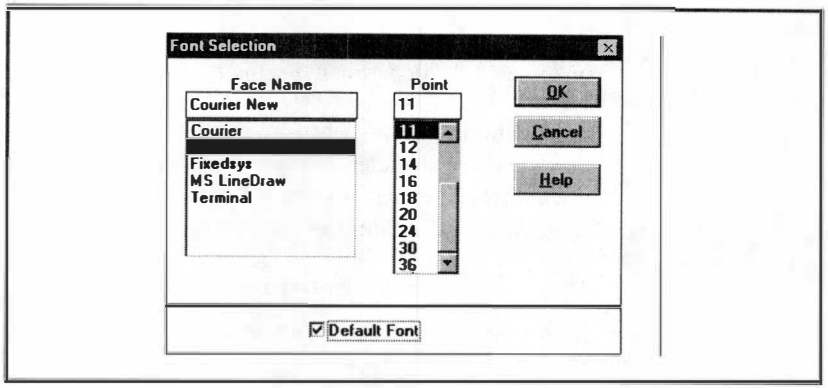
Font Selection

Choosing **Fonts - Fonts...** brings up the Font Selection dialog box, from which you can select a font for the selected text.

The Face Name box contains the name of the font for the selected text. A list box shows available fonts with the current font highlighted. Click the desired font to change the current font in the Face Name box. Use the arrows to help find the desired size, and click to select the font size.

Click **OK** to set the highlighted text to the currently selected font and size.

Figure 52
Font Selection dialog



To use a single font for the entire report, select the font face and click the **Default Font** check-box. This becomes the Normal enhancement selection.

Report Criteria

The Forms Editor **Options** menu lets you select criteria for record selection in the report. The criteria cannot be set at runtime, and are stored with the form in which the selection is made. The criteria are defined in an expression that displays in a Select Record Criteria dialog when you choose **Options - Record Criteria**. The action of this dialog is the same as for "Define Selection Criteria" on page 46.

Building a Report in the MAT Report Generator - Form Editor

Reports in MAT are built using report forms. The report form contains the information that allows the same report to be run repeatedly with new or updated data. The report form stores information that fully describes the report to the MAT software. A report form is comprised of several sections that describe different aspects of the report. A number of standard report forms are provided with the MAT software to provide some commonly used reports.

This section describes a typical session to build a new report form. As an illustration, it produces a modified version of one of the MAT standard reports: Telephone Directory by Department. The report will print the department name once and print the station information for each department underneath the department heading.

This section describes a step-by-step process to produce a report form. As you become more proficient using the Report Generator, you might find that you use a different series of steps to build or modify reports. Perform the following steps to build a report form:

1 Decide what information needs to be displayed on the report.

2 Select the Report View that best provides the information.

3 Place the individual data fields on the report.

4 Decide if the report lines should be sorted.

5 Specify any special printer considerations for this report.

6 Apply the finishing touches.

7 Save the report and test the results.

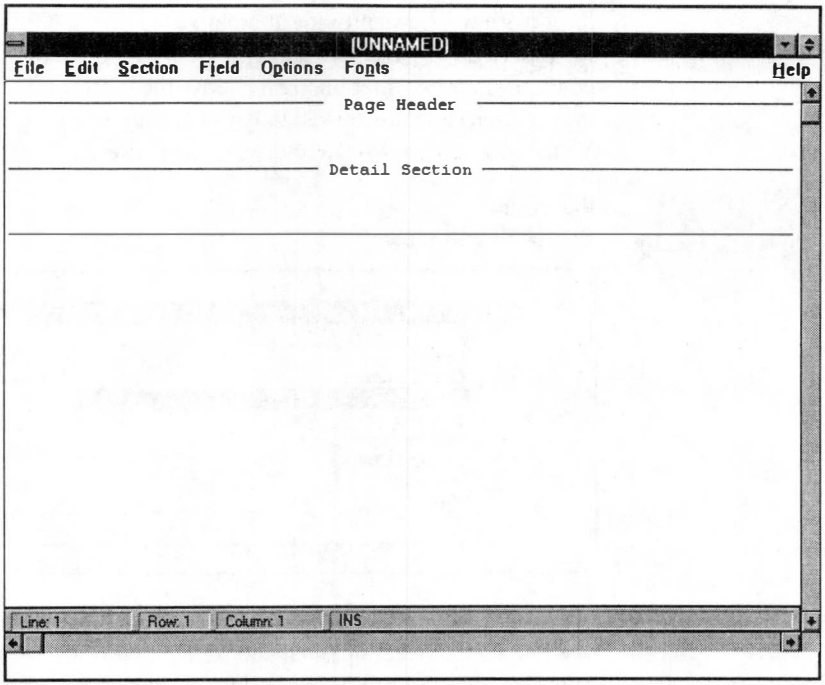
To work with Report Forms, start the Report Generator (choose **File - Reports - Report Generator**). Choose **Form - New Report Format**. This example shows how to create a new form. The report generator places an empty report form on the screen.

Decide what information needs to be displayed on the report

As we will see in the next section, information in MAT is organized Into several logical databases. A report can use any one of these logical databases. There is also MAT system-dependant data that can appear on a report. This data includes date, system name, page number. Reports also can contain fixed text, typically headings or other constant text information.

In this example, we are using station information (as distinguished from CPND or VMB information). We can sketch out a rough picture of the report as a guide to what will fit on the page and how much heading information will be included.

Figure 53
Empty Report Form

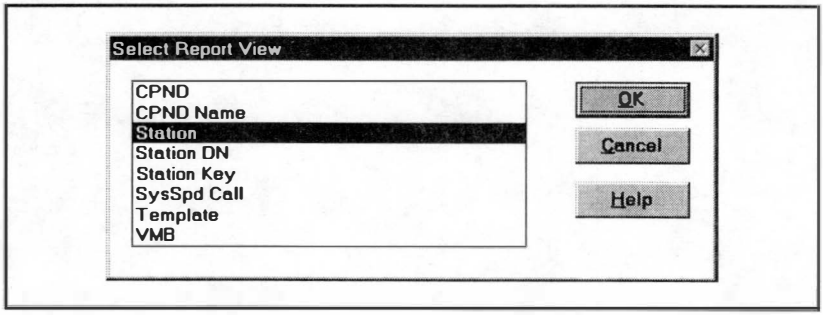


The basic model of the Report Generator is to read each record in the logical database, decide if it should be included in the report (according to the Report Filter). Some reports sort the records (according to the Sort Header sections). Finally, the records are printed. Some reports print out a line for each record included in the report (specified in the Detail section). Some reports print out summary information (specified in the Sort Header or Sort Footer section), such as the total number of particular instrument types. Some reports combine the detail and summary information

Select the Report view that best provides the information

After deciding to build a report focusing on station data, pick an appropriate Report View. Views provide alternative ways of looking at the data. Some of the report views describes the type of data. If the report describes CPND configuration information, then choose the CPND view; for CPND Name information (by Directory Number or Group) use the CPND Name view; for VMB information (by Directory Number) use the VMB view.

Figure 54
Select Report view



Station data is provided with some alternative views. If the report should print one line for each station, then choose the Station view. If the report should print one line for each Assigned Directory Number, then choose the Station DN view. If the report should print one line for each station key, then use the Station Key view. (In the Station Key view, single line information is included by assigning "pseudo key numbers" to the single line key features.) The SysSpdCall view is a special view primarily designed for the System Speed Call Report. It provides one record for each system speed call list user. If the report is selecting only certain records from the database or printing only summary data, then it will not actually print a line for each record, but the view describes how the selecting and sorting process examines the records in the database.

Place the individual data fields on the report

Once the Report View has been chosen and the basic design of the report has been defined, it is time to place the data on the report page. The Report Generator Forms Editor shows the current form broken into its logical sections. Initially the Page Header section and the Detail section are displayed. As other sections are incorporated into the form, they are displayed as well. In this example, the report contains the following sections:

Page Header: This section contains the information displayed at the top of each page. Typically, it would contain the report title, the column headings over the data, the page number, the system name.

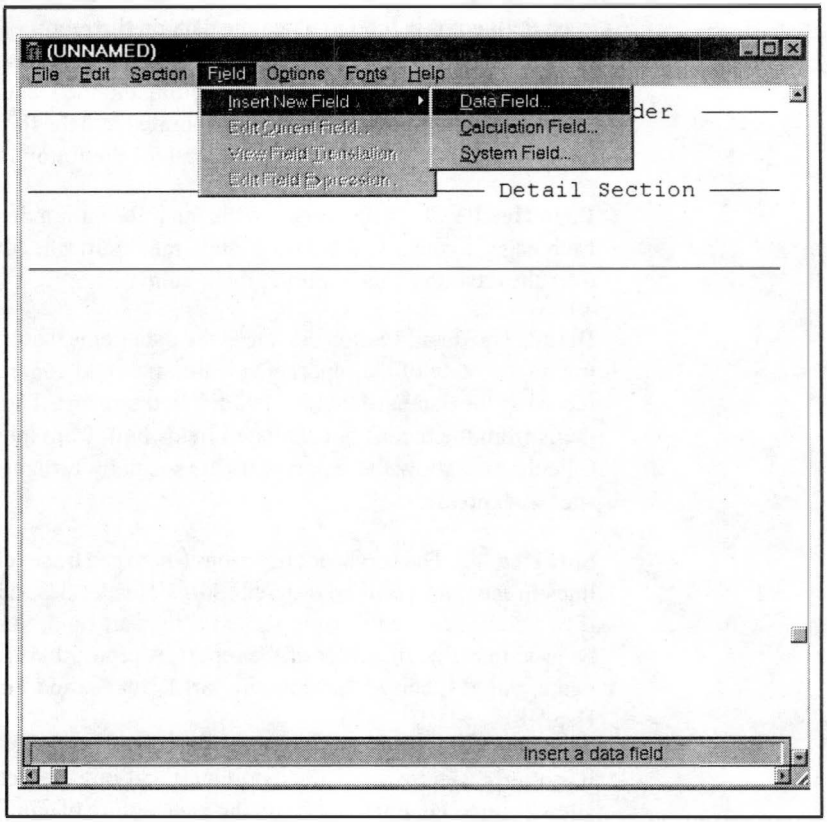
Detail: The detail section describes the data items that would appear on each line in the body of the report. Typically, it would contain data from each record in the database that is included in the report. The data might be data items from the record or calculated fields built from the data fields. Calculations allow the report to create specially formatted names or other special expressions.

Sort Header: The sort header sections (there can be several) describe how the lines in the report will be ordered. Sort I Header describes the primary sort, if two records have the same value for the sort field, then Sort 2 Header can be used to refine the order of the report. A report that should be ordered by name, might specify LastName in Sort 1 Header and FirstName in Sort 2 Header.

It is often easier to design the report by specifying the Detail section first. This allows you to lay out the data on the page before placing the column headers. Treat the screen as a blank report page and position the cursor in the Detail section where the field should be placed. Choose **Field - Insert New Field - Data Field** to see a list of available data items.

Choosing **Field - Insert New Field - Data Field** displays a list of the fields that apply to this report view. This Select Data Field list will also appear in other situations where you need to select a field. Several data fields have been added specially to help produce reports and some fields have special meanings that affect their use in reports. Some examples of special reporting data fields include:

Figure 55
Inserting Data Field in the Details section



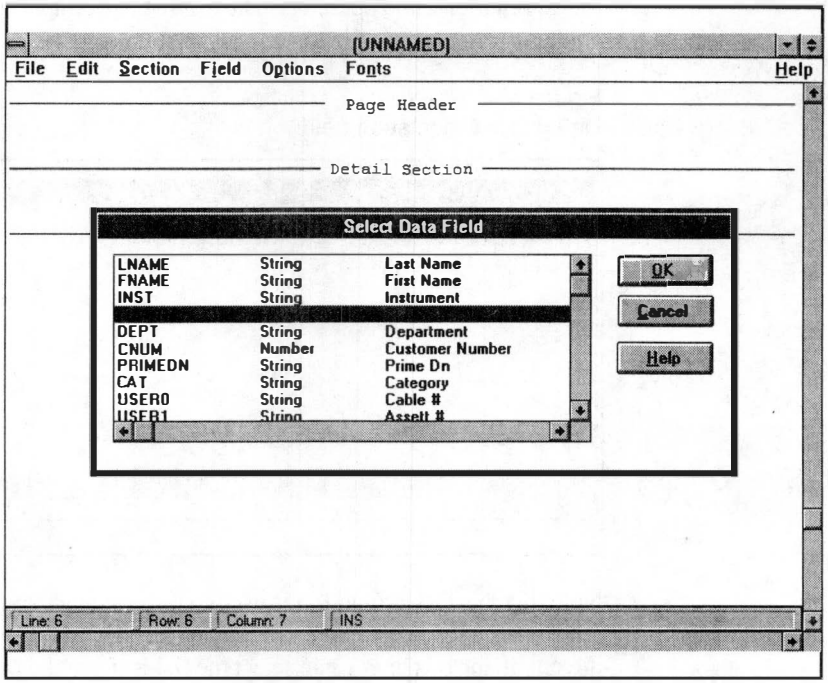
ADN - All Directory Numbers: a list of all the Directory Numbers assigned to the station. This field creates a text field with the DNs separated by a space.

ACDS: Keys Assigned to Automatic Call Distribution, showing both the ACD DN and Position ID.

DN: This the Directory Number assigned to a single line station. The PRIMEDN field contains the Directory Number assigned to a single line station and the Directory Number assigned to Key 0 on multi-line station.

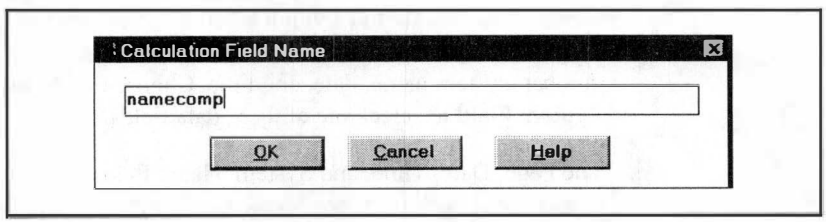
Key features should be reported from the Station Key view and not from KEYGUPD or FTRGUPD.

Figure 56
Select Data Field dialog



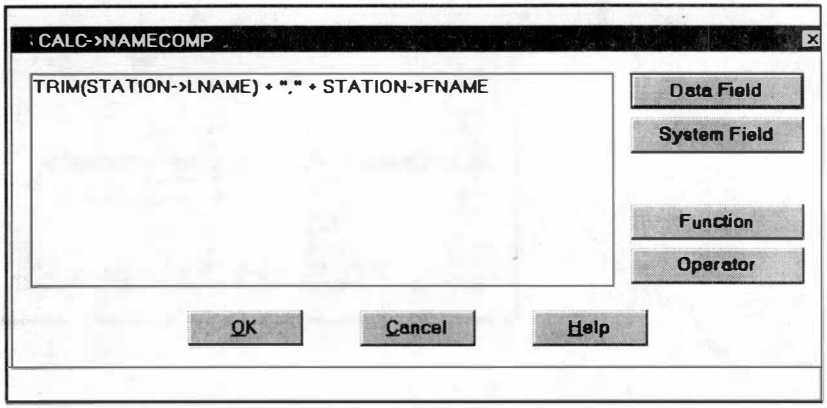
Use a calculated data field to tailor the information from the data record. To use a calculated field in a report, choose **Field - Insert New Field - Calculation Field**. A dialog appears, prompting you to name the newly calculated field.

Figure 57
Naming a Calculation field



The Field Name dialog is followed by a dialog that allows you to construct an expression that performs the calculation. It can be built from existing data fields, functions, and operators. The following example constructs a field that contains "Last Name, First Name".

Figure 58
Defining a Calculation field



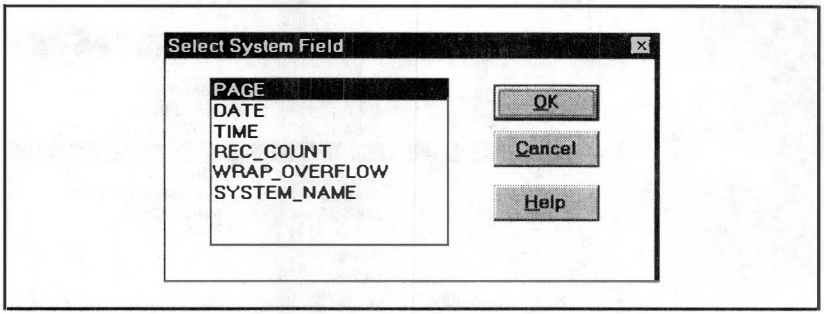
Note that the TRIM function is used to remove extra spaces and the "+" operator is used to concatenate the two fields. You can type the expression directly in the box or you can select the fields (from the **Data Field** or **System Field** buttons), the functions, and the operators. The expression will be built as the pieces are selected.

Note that some functions apply to text fields and some functions apply to numeric fields. The Select Data Field list shows whether a field is numeric or text. In general, functions should not be applied to the System fields.

After the detail section has been specified, you can design the Page Header section. The text for the column labels can be placed over the appropriate data. The Page Header section often uses the System data fields: page number, system name, date, and time. Choose **Field - Insert New Field - System Field** to select one of these data fields.

The Page, Date, Time, and System_Name fields are commonly used in the Page Header section. We will discuss the other system fields in later in the section titled "Some Special Techniques".

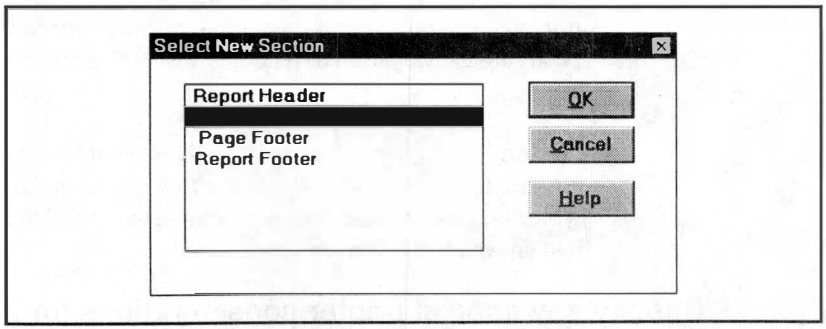
Figure 59
System Field list



Decide if the report lines should be sorted

Many reports require the data to be sorted. Since there is no sort information on a new report form, choose **Section - New Section** and select Sort 1 Header from the dialog. This will add a sort section to the report.

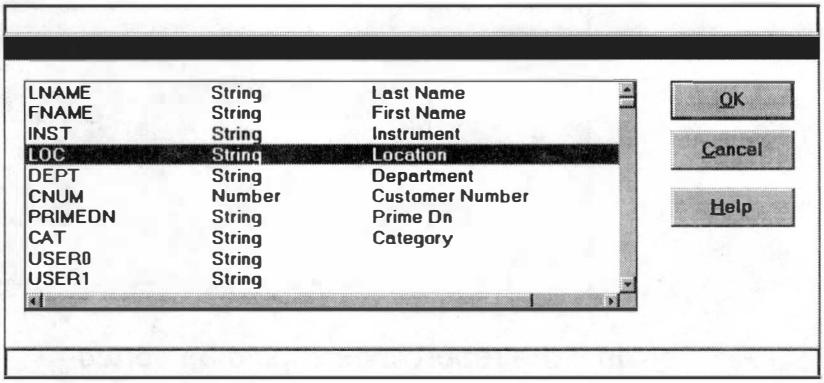
Figure 60
Select New Section



The first sort section specifies the data field that provides the primary ordering of the data. The data value to use for sorting will be selected from the list of data fields.

Other sort sections will be applied only to provide secondary order levels within the primary ordering. To order a report by alphabetizing the names of people in a department, the report should use Department for Sort 1 Header, LastName for Sort 2 Header, and FirstName for Sort 3 Header.

Figure 61
Select Data Field



To modify a Sort Header after it has been specified, choose **Section - Sort Field**. (It will only be available if the cursor is positioned in a Sort Header.) From this dialog, the **Sort Field** button again displays the familiar list of data fields.

Summary information can be specified in the Sort Fields, as well. On a report sorted by department, it is possible to print each department name once, by specifying the Department field in the Sort Header section (and not in the Detail section).

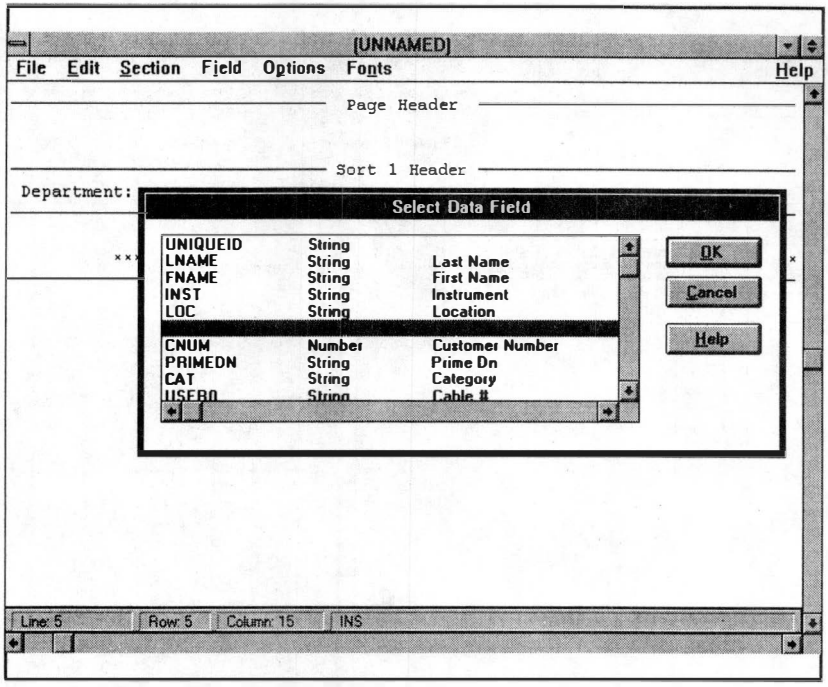
The Sort Header section will print only when the Sort Header's field value changes. It uses the data field on the first record in the new sort group. Typically, the data field chosen to print in the Sort Header should be the same field on which the data are being sorted.

Specify any special printer considerations for this report

The Report Generator allows each report form to contain special printer information. Some reports might be designed to print in landscape mode, while others should print in portrait mode. Some reports might require a special printer, an impact printer with special forms, for example.

Choose **File - Printer Setup** to select a printer and the **Setup** button to specify special information about the printer.

Figure 62
Adding summary information in the Sort Header section

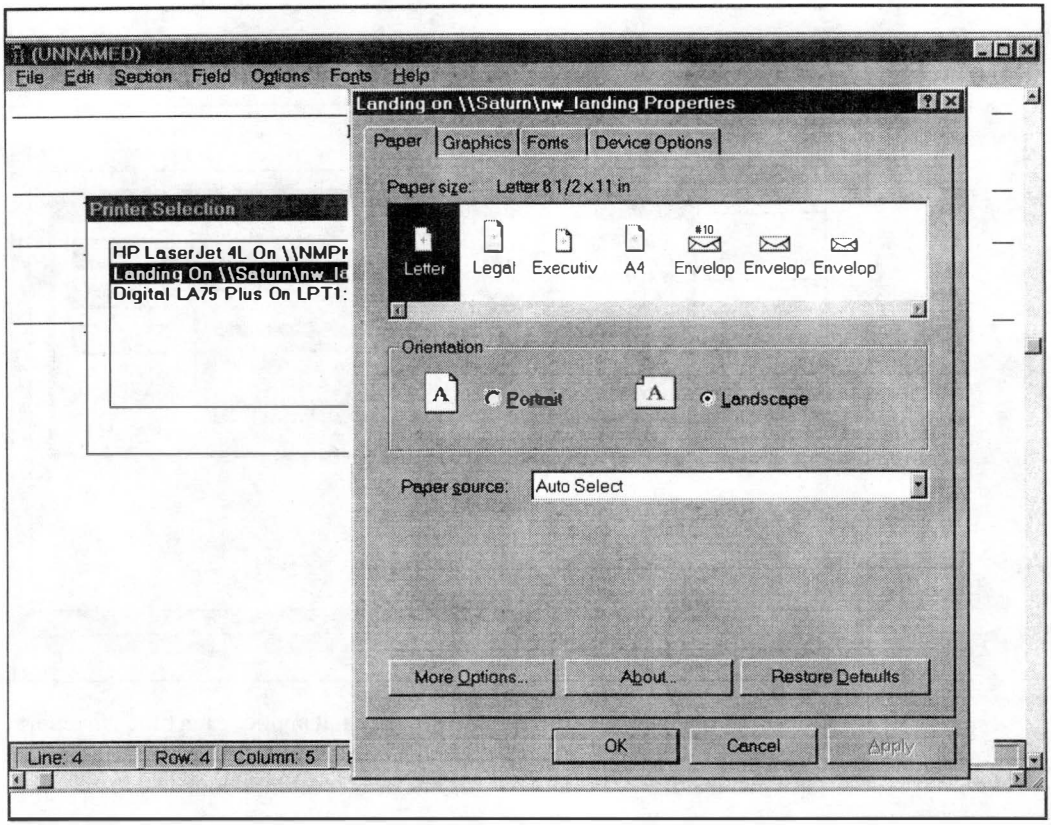


This information is stored with the form so that it applies each time the report is printed. When the Report Generator actually builds the report from the form and the data, you can override this printer information.

Apply the finishing touches

The Form Editor provides some additional capabilities to tailor the report. As you examine the almost complete report, you might wish to modify the appearance of the report.

Figure 63
Selecting a printer



Lengthening and Shortening Data Fields

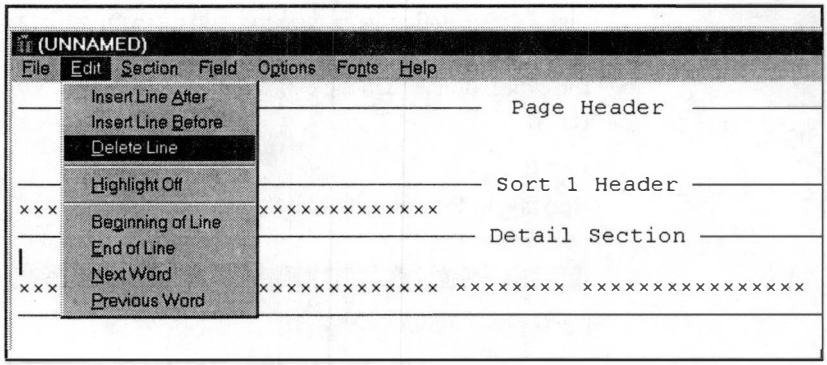
You can adjust the width of the data fields in the report. The area for each data field is marked on the form with the small letter 'x'. The data will be printed in that marked area. If the actual data are longer, they will be truncated to fit in the area; if they are shorter, the rest of the marked area will be filled with blanks. In the example report, you must lengthen the area set aside for the calculated field which holds the name. You might want to shorten a field in order to try to squeeze another field onto the report.

To adjust the width of a data field, place the cursor in the marked area. To shorten the field, press <Delete> or <Backspace>. To widen the field, press any other key. It will appear on the form as the small letter 'x'.

Adding and Deleting Blank Lines

The Form Editor allows you to add and delete blank lines on the report. On a new form, the data in the Detail section is, by default, double spaced. To make a single-space report, position the cursor on the extra blank line and choose **Edit - Delete Line**.

Figure 64
Deleting a blank line from the Detail section



Other items in the **Edit** menu allow you to insert blank lines either above or below the line on which the cursor currently rests.

Report Parameters

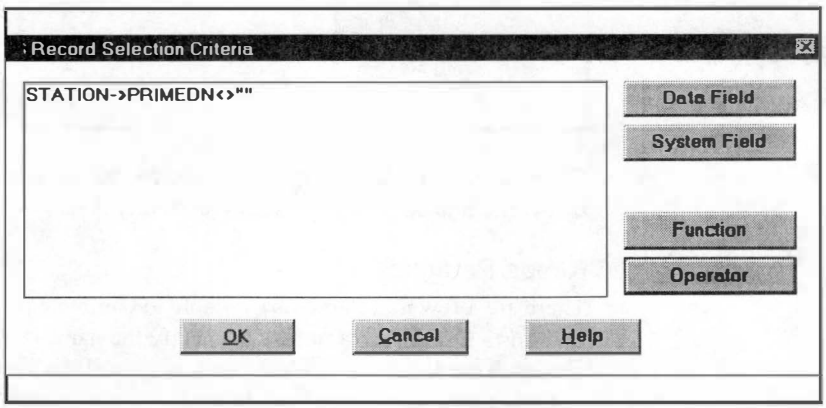
There are a few more options available to complete the report. Choose **Options - Report Parameters** to specify the name of the report as it will appear in the list of available reports. It also allows you to specify margins and other report -wide options.

The Print Trial Records is used for reports that require that the paper be correctly aligned in the printer. It has no effect until you send the report to the printer. At that time, the Report Generator will ask whether it should print a Trial Report. The Trial Report contains the Header and Footer sections and a single line from the Detail Section. Each data field is replaced with a string of the letter 'X' of the appropriate length. You will be asked to print the Trial Report until you click **No**. This allows you to adjust the paper in the printer until it is properly aligned. Then the full report can be printed.

Report Filter

The Report Filter selects which records are to be included in the report. Choosing **Options - Report Filter** displays the Record Selection Criteria dialog. This dialog helps you to build an expression, typically from the data fields. As the Report Generator reads each record in the database, it evaluates the expression. When the expression is true, the record will be included in the report.

Figure 65
Specifying the records to be included in the report



The Record Selection Criteria dialog operates very much like the Calculation Field dialog. However, you should build an expression, usually including a comparison operator (=, >, <, <>). In the example, we are selecting all records for which there is a PrimeDN. The expression tests whether the PrimeDN field is not equal (<>) to blank (" ").

Modifying fields

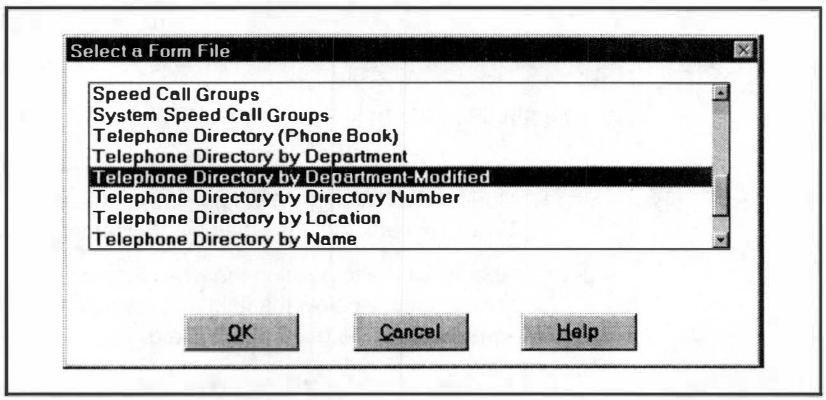
As part of the final tuning, you might want to specify more exactly how the fields are to be displayed. Choose **Field - Edit Current Field**.

The Alignment options operate within the area of the data field, marked by the letter 'x'. The Wrap options should apply when the field will not fit in the area allowed. The section on "Some Special Techniques" discusses how to wrap text. Similar display options, like whether to use commas, control the printing of numeric fields.

Save the report and test the results

With the initial specification of the form complete, it is time to save the form and test it with the data from the system. Choose **File - Save** or **File - Save As** to save the form. Choosing **File - Exit** returns control to the Report Generator. To test the form, choose **Report - Run Report** to select the report form you wish to run.

Figure 66
Choosing the example form



The Select a Form File list uses the report names specified in the Form Editor's Option/Report Parameters dialog. If you did not specify a name for a new form, this list will display the file name. If you modified an existing form and saved it with a new file name but did not change the Report Name, that Report Name will appear twice. (You should go back into the Form Editor to give your modified report a new Report Name.)

As you run the report, you might find that you wish to modify the form. From the Report Generator choose **Form - Open Existing Report Format** to return to the Form Editor and modify the form.

Some Special Techniques

The following are a few special techniques available in the Form Editor to help you customize your reports:

Sort Header section /Break Field

If the cursor is placed in a Sort Header section, the **Section - Break Field** menu item is enabled. The Break Field is a data field that causes the Sort Header section and the Sort Footer section to print. By default (and almost always) the Break Field is the same as the Sort Field that was specified when the Sort Header section was created.

Word Wrap

If the data field will not fit in the area allowed for it on the form, you can specify that the field should wrap. By default, data which will not fit in the allotted space will be truncated. Wrapping is especially useful for a field like ADN (the list of all Directory Numbers assigned to a station), which can be either quite long or quite short.

Wrapping the data field requires two steps:

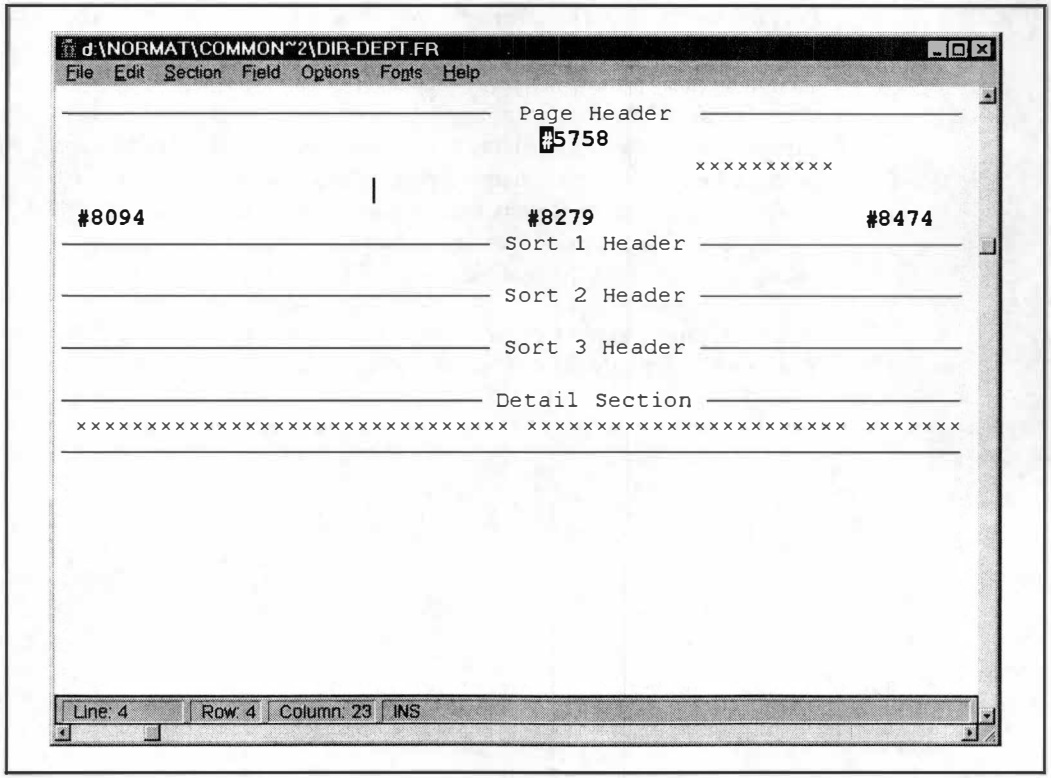
1. Mark the field as one that should be wrapped using the Field/Edit Current Field dialog. (Wrapping only appliies to text fields.) Choose the Wrap Text box to cause the field to wrap at a word.
2. Specify where to position the wrapped portion of the field. Position the cursor directly below the field that is to be wrapped and choose **Field - Insert New Field - System Field.**

You can include several overflow areas directly below each other. If you wish to include the line for the overflow only if it is needed, choose **Section - Edit Current Section**. This dialog includes an option to Suppress Blank Lines that will only print the line with the Wrap_Overflow field if it is used.

Modifying a standard report

If you choose to modify one of the standard reports distributed with MAT, you will notice that there are numbers in the headers, instead of text. These numbers allow the reports to translate automatically to another language.

Figure 67
Example Report



To see the actual text within the Form Editor, position the cursor on the octothorp character (#) and choose **Field - View Field Translation**. A box will display the text that will appear on the printed report.

A quick description of some section types not used in the example

Sort Footer Section: Data fields placed in the Sort Footer section can be used like summary data in the Sort Header section. The fields in the Sort Footer section are only printed if the value changes (except that it prints after the detail lines). In addition, Sort Footer data can contain totals and other summary statistics. After placing a data field in the Sort Footer, you are prompted with a list that contains Value (to print the value from the last record in the group) or various summary statistics (include Total, Average, Count, Max, Min). These summary statistics also can be specified by choosing **Field - Edit Current Field** in the Footer Field box.

Report Header, Report Footer: These sections can be used to specify data that should print only once at the beginning or the end of the report.

Power User Tool

The standard MAT Station Administration window allows you to easily add or modify a few stations at a time. However, creating or maintaining large groups of stations quickly (as when establishing a new system) is better handled using the Power User tool.

The Power User Forms window minimizes the actions required to add a station, eliminates up-front configuration of line cards and numbering plan, and allows you to create specialized installation *forms* that include only the station fields that you decide you need to configure stations.

> ***Note:*** At any time while using the Forms window, you can press <F1> for on-line reference information on the current field.

Concepts for the Power User tool

The concepts of *forms*, *templates*, and *filters* are important to understand before using the Power User tool.

Forms and templates

A *form* (a file that you can design) acts as a *filter* to determine which fields (of the hundreds possible) are displayed in the Power User Forms window for you to edit. When it's time to use the form, you fill in the station values as needed for the first station, save them, and move to the form for the next station in the group that you are adding. You create a form file (a list of only those station-definition fields you wish to see in the order in which you want to see them) using the Forms Editor.

A *template* places default values in some of these fields to save you the repetitive task of adding the same value to station after station. You create a template file (a partially filled-in station) using the template view in the Station Administration module.

Note: The function of templates is identical in the standard Graphical User Interface and the Forms Interface.

This means that a form, used in conjunction with a template, provides you with a station-definition window including only those fields that you wish to edit, and with many fields already configured by the template with values of your choosing.

To lessen clutter on the screen, the fields configured by the template are not displayed. This means that you work with only those fields which must be "personalized" for this station. You do not waste time moving through already-configured fields.

You view and edit these station-configuration fields in the Forms Interface window.

Filters

There are hundreds of fields for a station, yet you are probably interested in only a few. The Form File that you define acts as a filter to allow only the fields of interest to appear in the forms interface station definition window.

MAT automatically performs a second filtering to determine which of the station fields defined in the Form File actually apply to the current station. This *applicability* filter is based upon Meridian 1 system data (X11 software release, option packages, customer options) and the type of the current station.

There are two important benefits to this applicability filter, as follows:

— Form files are independent of systems, and, therefore, X11 software release, options packages, and customer options

  For example, a form file might contain fields that apply to release 20, but not to release 19. You can safely use this form with release 19 systems, since the release 20 fields will not be displayed.

— Form Files are independent of station types

  A single Form File can include both single line FTR's and multi-line keys. If the form is used to display a single line station, then the FTR'S (but not the keys) are displayed. If the same form is used to display a multi-line station, then the keys (but not the FTR's) are displayed.

Using the power user Forms interface

You use the Forms interface to add one or many stations to a system, as described in this section. "Designing forms and templates using the forms editor" on page 152 describes the process of creating forms and templates.

Forms interface window buttons

The following buttons appear at the top of the Forms interface window:

- **OK**: (Single station adds only) Saves the current station and closes the window.
- **Next**: (Multiple station adds only) Saves the current station, and opens the next blank station form.
- **Previous**: (Multiple station adds only) Saves the current station and opens the previously-created station.
- **Cancel**: Cancels any changes to the current station and closes the window. Any stations created before the current station while using this form are still in place.
- **Validate**: Validates all current station values.
- **Print**: Prints a a short form for the current station. This printout shows all values in the station, not just those on the form. (This is a quick way for you to check the value of a field not on the form.)
- **Help**: Opens Windows Help.

Forms interface message bar

The message bar at the bottom of the window has two panels. The left panel provides a description of the current field. The right panel displays hint text for the current field. For example, the hot keys to invoke the DN and TN lists where appropriate.

Keyboard shortcuts

In the procedures that follow, keyboard shortcuts are shown in brackets.

Adding a single station or template

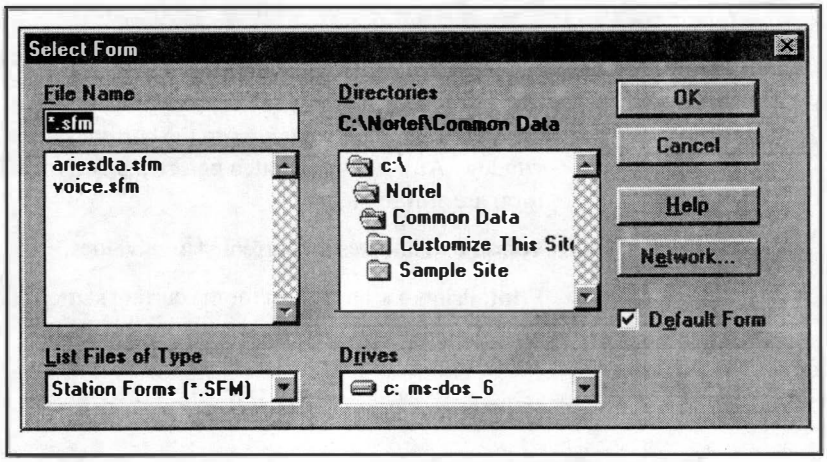
1 Choose **Forms - Forms Interface**. <INS>

This is a toggled menu item. Clicking it places a checkmark next to the name (selects it), and clicking again removes the checkmark (deselects it).

2 Choose **Forms - Select Form**. <Alt>O-S

The Select Form dialog appears. This is a standard Windows file open dialog.

Figure 68
Select Form dialog



MAT provides the following example forms for you to use in creating forms that meet your needs:

- ARIESDTA.SFM: designed for M2xxx and M3xxx data stations
- VOICE.SFM: designed for all types of voice stations (single and multi-line)
- Default form: A general-purpose form that includes most station fields. This is a good starting point for a form with many fields. You choose to use this form by selecting the Default Form check box.

3 Select the form from the list box or select the Default Form check box. Click **OK**.

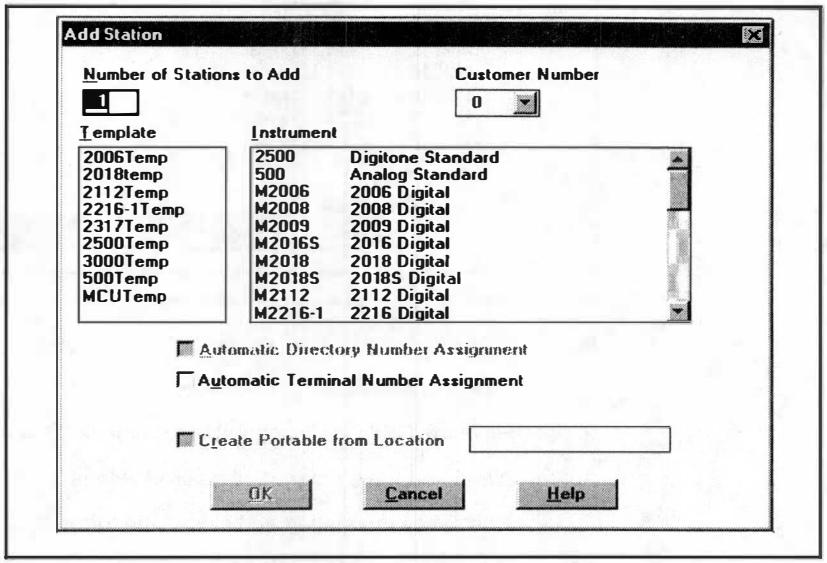
4 Choose **View - Station** to add a station or select Template to add a template. <Alt>V-S

The existing stations (or templates) for the system appear in the MAT Station Administration window.

5 Choose **Edit - Add.** <Ins>

The Add Station dialog (or Add Template dialog) appears.

Figure 69
Add station dialog



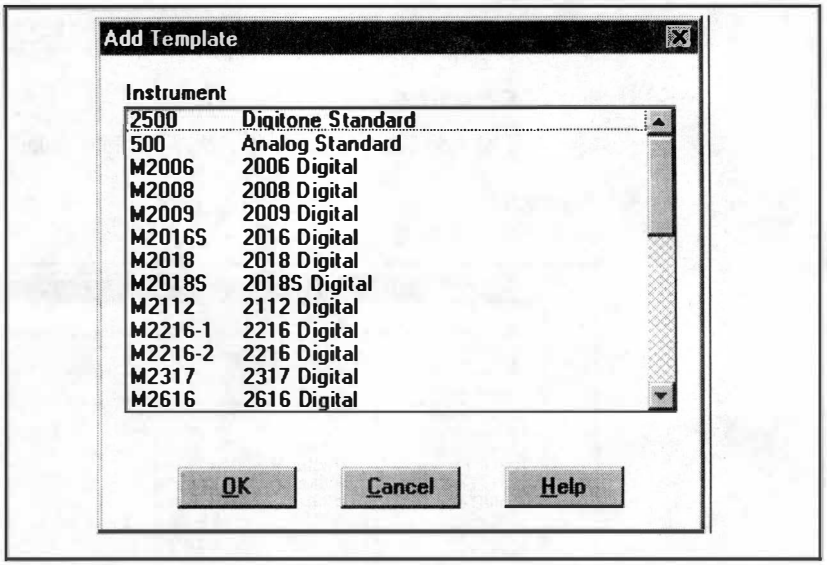
6 If you are adding stations, follow these steps:

- Enter "1" in the Number of Stations to Add field.
- Select the Customer Number in the pull-down box.
- Choose a template or instrument.

  If you choose a template, some fields will be filled in with the default values that you chose when designing the template.
- Click the check boxes to automatically assign DN or TN, as desired.

7 If you are adding a template, select a template from the list.

Figure 70
Add Template dialog



8 Click **OK** to open the Forms Interface window.

The single station add form appears.

9 Fill in the fields as described in "Station fields" on page 144.

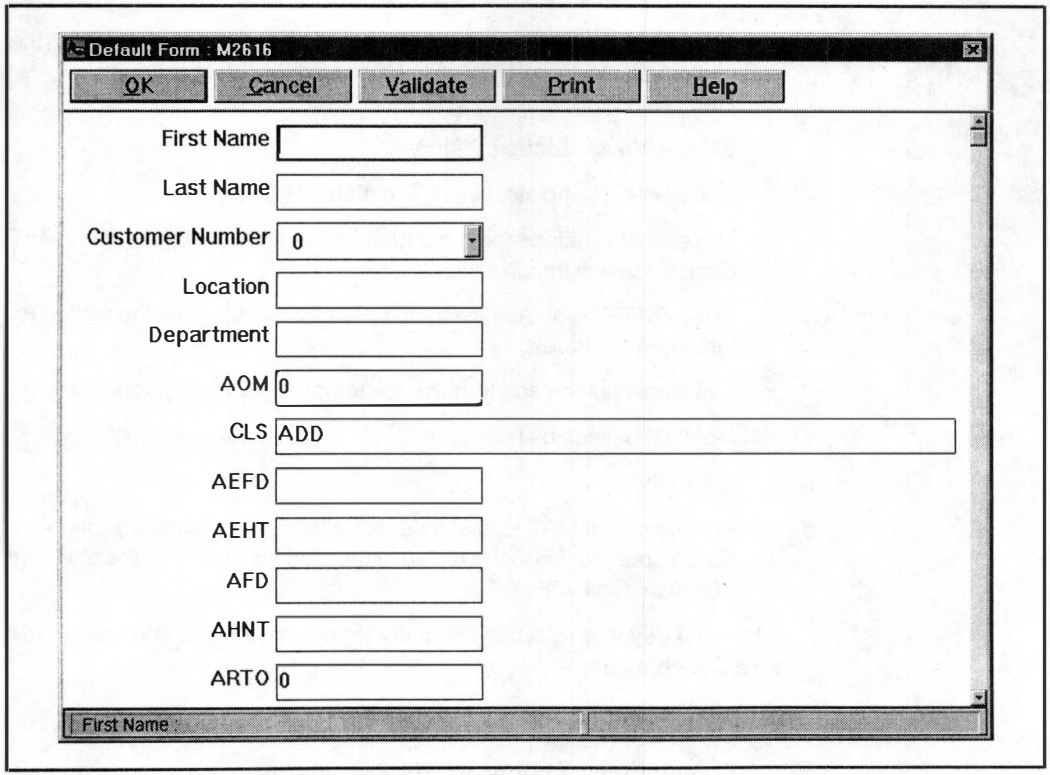
10 When you have entered all desired values, click **OK**.

This saves the station and closes the forms interface window.

11 For stations: If MAT is in Maintenance mode, the synchronization dialog appears. Fill in the dialog in the same way as with the standard interface. Click **OK**.

To invoke synchronization manually if you are in Installation mode, use the **Synch** menu.

Figure 71
Single station add form



Updating a single station (or template)

1 Choose **Forms - Forms Interface**. <Alt>O-F

This is a toggled menu item. Clicking it places a checkmark next to the name (selects it), and clicking again removes the checkmark (deselects it).

2 Choose **View - Station**. <Alt>V-S

(To modify a template, select Template. <Alt>V-T

The existing stations (or templates) for the system appear in the MAT Station Administration window.

3 In the MAT Station Administration window, double-click the station (or template) of interest.

The single station add form (or the template add form) appears.

4 Modify the fields as needed.

5 Click **OK**.

6 For stations: If MAT is in Maintenance mode, the synchronization dialog appears. Fill in the dialog in the same way as with the standard interface. Click **OK**.

To invoke synchronization manually if you are in Installation mode, use the **Synch** menu.

Adding multiple stations

1 Choose **Forms - Forms Interface**. <Alt>O-F

This is a toggled menu item. Clicking it places a checkmark next to the name (selects it), and clicking again removes the checkmark (deselects it).

2 Choose **Forms - Select Form**. <Alt>O-S

The Select Form dialog appears. This is a standard Windows file open dialog. See Figure 79.

MAT provides the following pre-defined forms:

- ARIESDTA.SFM: designed for M2xxx and M3xxx data stations
- VOICE.SFM: designed for all types of voice stations (single and multi-line)
- Default form: A general-purpose form that includes all station fields. This is a good starting point for a form with many fields. You choose to use this form by selecting the Default Form check box.

Note: MAT provides these pre-defined forms as starting points for your own special-purpose forms. You can create forms that include just the fields you need, and templates that set values that you define. See "Creating a new form" on page 152 and "Editing an existing form" on page 153.

3 Select the form from the list box or select the Default Form check box. Click **OK**.

4 Choose **View - Station**. <Alt>V-S

The existing stations for the system appear in the MAT Station Administration window.

5 Choose **Edit - Add**. <Ins>

The Add Station dialog appears.

6 Enter the number of stations that you wish to add.

7 Select the Customer Number in the pull-down box.

8 Choose a template or instrument.

If you choose a template, some fields will be filled in with the default values that you chose when designing the template.

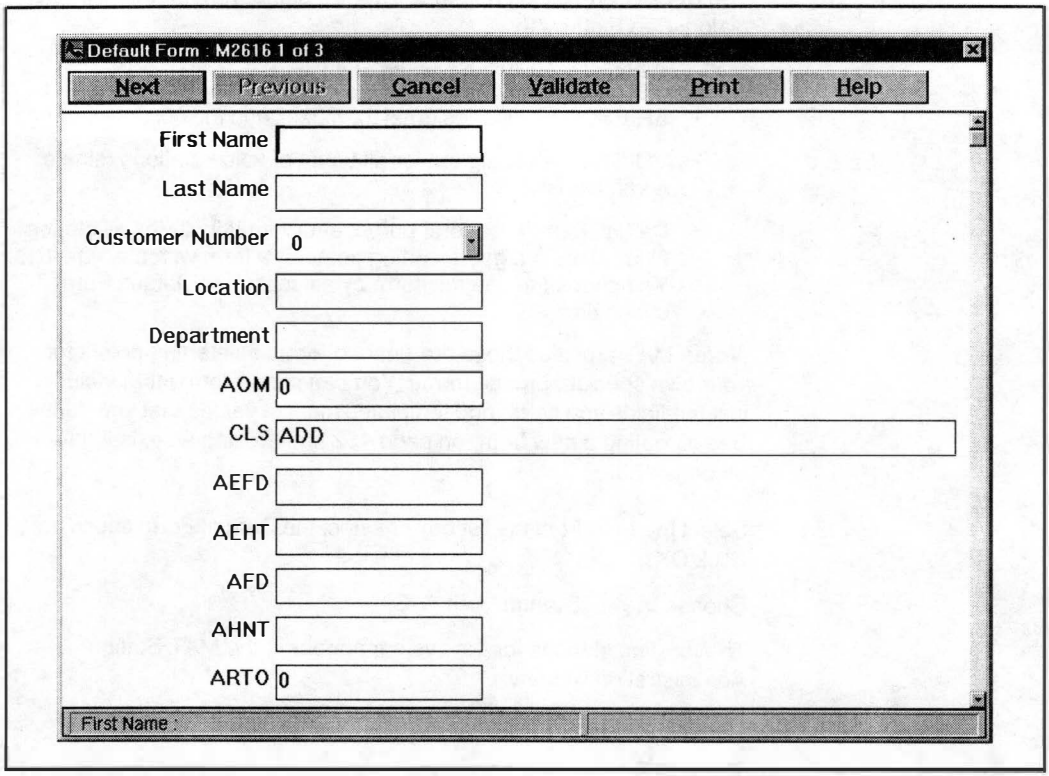
9 Click the check boxes to automatically assign DN or TN, as desired.

10 Click **OK** to open the Forms Interface window.

The multiple station add form appears.

11 Fill in the fields as described in "Station fields" on page 144.

Figure 72
Multiple station add form (default form)



12 When you have entered all desired values, Click **Next**.

This saves the station and opens the next blank station form. The **Next** button changes to a **Finish** button while you edit the last station in the group. The **Finish** button saves the station and closes the forms interface window.

13 If MAT is in Maintenance mode, the synchronization dialog appears. Fill in the dialog in the same way as with the standard interface. Click **OK**.

To invoke synchronization manually if you are in Installation mode, use the **Synch** menu.

Validating station data

You can validate by field or by station, same as the standard interface. In addition, you have the option to relax numbering plan and hardware validations to ease the process of adding multiple stations at one time.

Field validation

The current field is automatically validated when you move to another field. If the validation fails, an error message appears, and the focus returns to the erroneous field.

Station validation

In the Forms Interface window, click **Validate** to validate all values for the station. This performs the same operation as when you choose **File - Validation**.

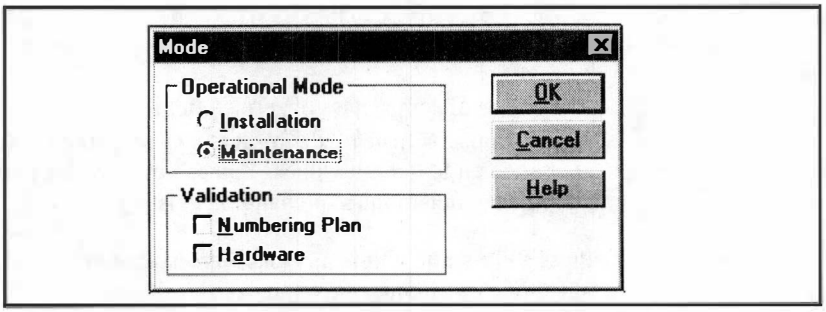
Validating the numbering plan and hardware

You can relax the numbering plan and hardware validations as follows:

— Turn off numbering plan validation. This allows you to assign a DN not defined in the numbering plan, without generating an error.

— Turn off hardware validation. This allows you to assign a TN for which there is no corresponding circuit card, without generating an error.

Figure 73
Mode dialog



Note: These validation settings affect both the forms interface and the standard interface.

Station fields

This section provides detail on the station fields that you fill in using the Forms Interface.

On-line Help

At any time while using the Forms window, you can press <F1> for on-line reference information on the current field.

Types of Station field

The following basic types of station fields can appear in the Forms Interface:

- Class of service
- Mutli-line keys
- Single line FTR's
- Prompts: These are all fields which do not fall into one of the above categories (for examples, TN, NCOS, and TGAR)

Class of service field

The Class of service control appears as a CLS text box which can contain multiple values (the approach taken by overlays 10 and 11). Enter all CLS mnemonics for this station in the CLS text box.

You can enter multiple mnemonics for the same class of service in the CLS text box (for example, CFXA and CFXD). In this case, whichever mnemonic appears last (furthest to the right) takes precedence. This is consistent with the operation of overlays 10 and 11.

The values of some Class of service fields might not be visible on the form when it appears. Instead, the form shows only those classes of service which are not equal to default values. You can modify this partial configuration by adding new mnemonics or changing existing ones.

Press <F1> while within any class of service field for a complete list of class of service mnemonics in Windows Help format.

Printing the class of service configuration

The **Print** button on the form window allows you to print a short form which shows the complete class of service configuration.

Mutli-line keys

Keys for multi-line stations appear as drop-down boxes containing all key mnemonics. As you move through the list of mnemonics, the key description appears in the message bar at the bottom of the window. Additional parameter controls appear automatically if a mnemonic requires them (and for FTRs set to **Yes**).

You can also type a mnemonic directly into the box. MAT tracks your typing and automatically enters the first matching key (and any associated parameter controls).

Alternately, type the first letter of the mnemonic, followed by the down arrow key. The selection moves to the mnemonic starting with that letter. Press the down arrow key again to scroll down the list starting at that point.

Single line FTR's

FTRs appear as drop-down boxes containing the choices **Yes** and **No**. You can also type directly into the box. Additional parameter fields appear automatically if you set an FTR to **Yes**. When you move the cursor into a parameter field, the parameter description appears in the message bar at the bottom of the window.

Prompts

Prompt fields appear as either drop-down lists or as edit boxes, depending on the type of the field. Fields with a small number of predefined values appear as drop-down lists (for example, FCAR and DTR). Numeric fields and other fields with a wide range of possible values appear as edit boxes (for example, DES and FDN).

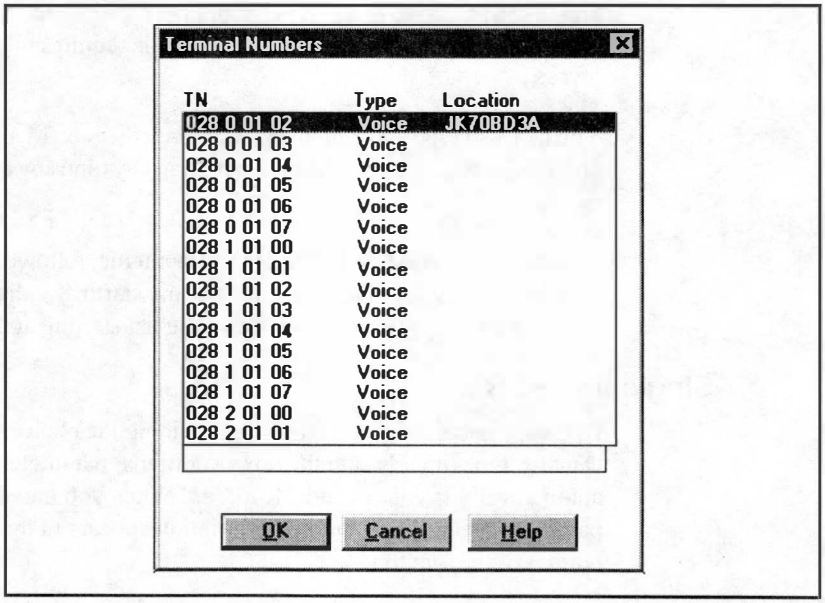
DN and TN fields

DN and TN fields allow you to use lists of values to fill in the fields. In addition, extra fields appear as needed to allow you to enter parameter values.

TN fields

When you edit a fields with a TN type value, press <Ctrl>T (or double-click in the field) for a list of TNs compatible with the current station type.

Figure 74
TN value list



DN fields

In addition to station fields, you need to modify fields that are not directly associated with the current station, but which are associated with DNs that appear on the station. You can use the following DN fields in the forms interface:

— MARP

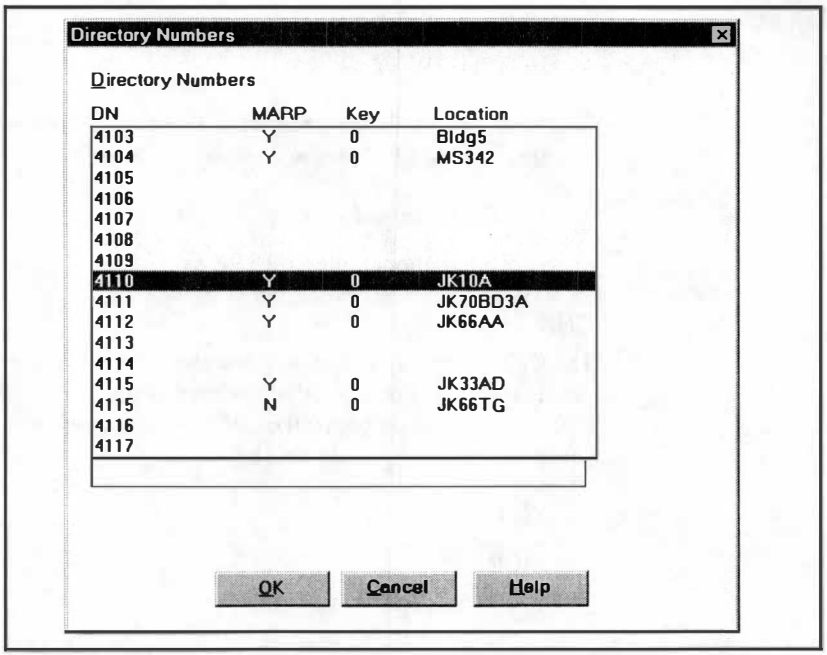
— CPND

— VMB

Note: DN data is applicable to stations only, not templates. Therefore, the MARP, CPND, and VMB controls described below appear only on a form when operating on stations. Templates do not actually have DNs. Even if a template is configured with a fully specified DN, no DN record will be added to the database until a station is created using the template. Therefore, at the time a template is created, there is no way to store any DN data.

Press <Ctrl> D while in a DN field (or double-click in the field) for a list of DNs. In the standard interface, MARP, CPND, and VMB appear as buttons on the DN list dialog. In the forms interface, MARP, CPND, and VMB appear as fields on the main form.

Figure 75
DN value list



MARP

The MARP drop-down list appears below the DN field with which it is associated. Multiple appearance DNs can have values of **Yes** or **No**. Single appearance DNs can have a value of **Yes**. The MARP field appears below the DN field of a single-line station and below the following multi-line keys:

— MCN

— MCR

— PVN

— PVR

— SCN

— SCR

— HOT_L_2WAY

— HOT_D_2WAY

Note: The following Meridian 1 releases do not support MARP, therefore MARP does not appear on their forms:

- North American releases 14 and 17
- International release 16.9X G

CPND

The CPND name field is a single drop-down list (additional fields appear to the right if you choose a CPND value that requires them). See Figure 76. A CPND field appears below the DN field of a single line station, as well as below the following multi-line keys:

— MCN

— MCR

— SCN

— SCR.

You can choose one of the following values from the drop-down list:

— **None**: Performs no CPND operation

— **Add**: Creates a new CPND name (appears only if no name exists yet for the DN)

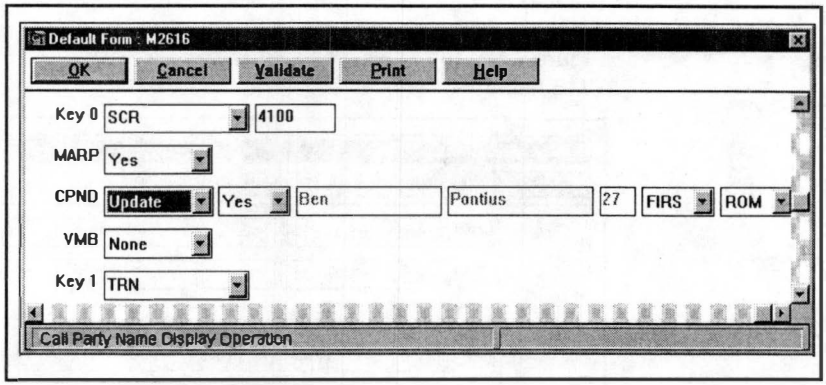
— **Delete**: Removes an existing CPND name

— **Update**: Modifies an existing CPND name

CPND Parameter Fields

As you move the cursor into a parameter field, the parameter description appears in the message bar at the bottom of the window. The following parameter fields appear to the right of the CPND field when you choose a value other than **None**:

Figure 76
CPND parameter fields



— Get from location: drop-down list containing **Yes** and **No**

— First name: text box

— Last name: text box

— Expected length: text box. This field is only added if the name has Synch Status **NEW**, and static allocation is enabled in the CPND Administration module.

— Format: drop-down list containing **FIRS** and **LAST**

— Language: drop-down list containing **ROM** and **KAT**. This field appears only if package 211 (Multi-language CPND) is enabled for the system.

Some additional attributes of the name controls follow:

— If the Get From Location field is **Yes**, then the First Name and Last Name controls are dimmed and disabled, and contain the name from the First Name and Last Name fields of the station.

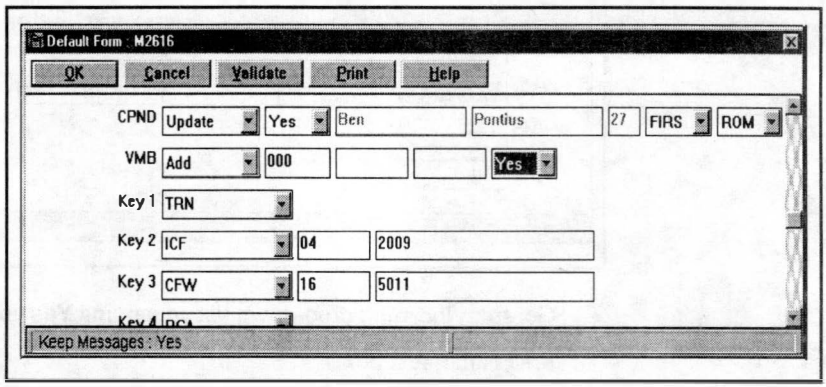
— If the operation is **Delete**, then the additional name controls are dimmed and disabled. This allows you to view the name which is to be deleted, but not to modify it.

Note: CPND depends on package 95 (Call Party Name Display). If package 95 is not enabled for a Meridian 1 system, the CPND field will not appear on the form.

VMB

VMB appears initially as a drop-down list (additional fields appear as needed).

Figure 77
VMB fields



A VMB appears below the DN field of a single line station, and below the following multi-line keys:

— MCN

— MCR

— SCN

— SCR

The drop-down list contains the VMB operation to be performed, and allows the following values:

— **None**: Perform no VMB operation

— **Add**: Create a new VMB (appears only if no VMB exists yet for the DN)

— **Delete**: Remove an existing VMB (appears only if a VMB does exist)

— **Update**: Modify an existing VMB (appears only if a VMB does exist)

If you select an operation other than **None**, then additional fields appear to the right of the VMB field. The additional fields are listed below in the order in which they will appear from left to right.

— Class of service (text edit field)

— Second DN (text edit field)

— Third DN (text edit field)

— Keep messages (drop-down list containing **No** and **Yes**). This control is only added if the voice mailbox has Synch Status **NEW**.

As you select a VMB field, the description appears in the message bar at the bottom of the window. Additional parameter fields appear automatically if a VMB requires them.

If the VMB operation is **Delete**, then the additional fields are dimmed. This allows you to view the VMB which is to be deleted, but not to modify it.

> ***Note:*** VMB depends on package 246 (Voice Mailbox Administration). If this package is not enabled for a Meridian 1 system, then the VMB fields do not appear on the form.

Designing forms and templates using the forms editor

The MAT application assumes that station Form Files are located in the Common Data subdirectory, using a ".SFM" file extension. You can, however, place these form files anywhere you wish.

MAT provides the following pre-defined forms:

— ARIESDTA.SFM: designed for M2xxx and M3xxx data stations

— VOICE.SFM: designed for all types of voice stations (single and multi-line)

— Default form: A general-purpose form that includes most station fields. This is a good starting point for a form with many fields. Instead of selecting this form in the file-selection box, you select this form by selecting the Default Form check box.

Creating a new form

To create a form, perform the following steps:

1 Choose **Forms - Forms Interface.** <Alt>O-F

2 Choose **Forms - Edit Custom Form.** <Alt>O-E

The FormEdit dialog appears.

3 Choose **File - New** to open a new form.<Alt>F-N

The FormEdit window appears with no fields in the Form Fields list.

4 From the Available Fields list, select the first field you wish to include in the form, and click **Add.**

The field moves to the Form Fields list.

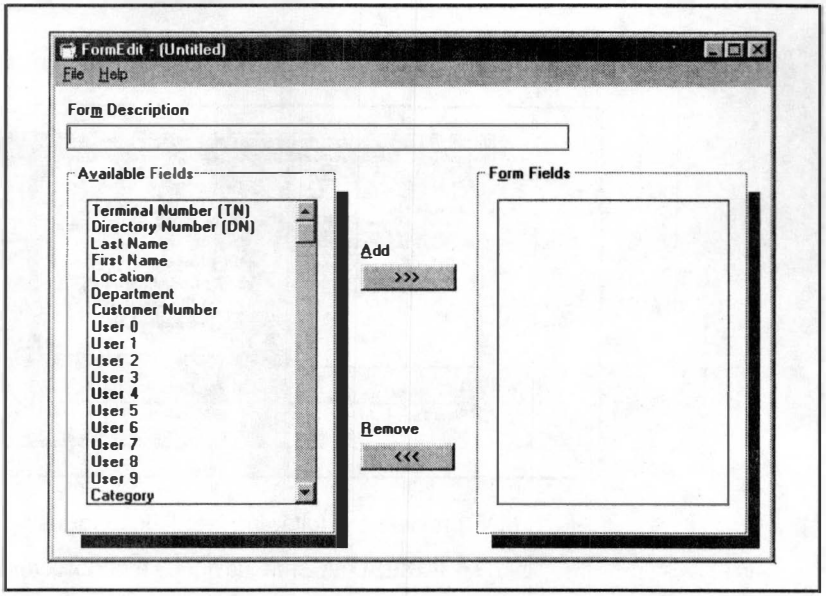
Alternately, you can select one or several fields to drag from the Available Fields list to the Form Fields list.

5 Move all the desired fields to the Form Fields list.

To change the order of the fields, click and drag items up or down in the list.

To remove an item from the list, click and drag from the Form Fields list to the Available Fields list, or select the item and click **Remove.**

Figure 78
FormEdit window for a new form



6 When the Form Fields includes all the desired fields in the correct order, type a descriptive phrase in the Form Description text box.

This is a phrase to help you remember the form's usage, not the filename.

7 Choose **File - Save** to save the form file. <Alt>F-S

The Save As window appears, allowing you to name the new form. Enter a filename and click **OK**.

Alternately, to exit the forms editor without saving the form, choose **File - Close**. A warning box prompts whether you wish to save the changes before exiting the editor.

Editing an existing form

To edit an existing form, follow these steps:

1 Choose **Forms - Forms Interface**. <Alt>O-F

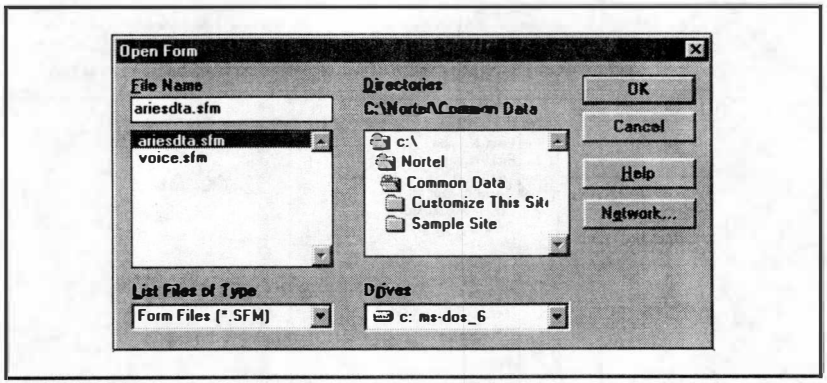
2 Choose **Forms - Edit Custom Form**. <Alt>O-E

The FormEdit dialog appears.

3 Choose **File - Open** to install a form. <Alt>F-O

The Select Form dialog appears.

Figure 79
Select Form dialog



MAT provides the following pre-defined forms:

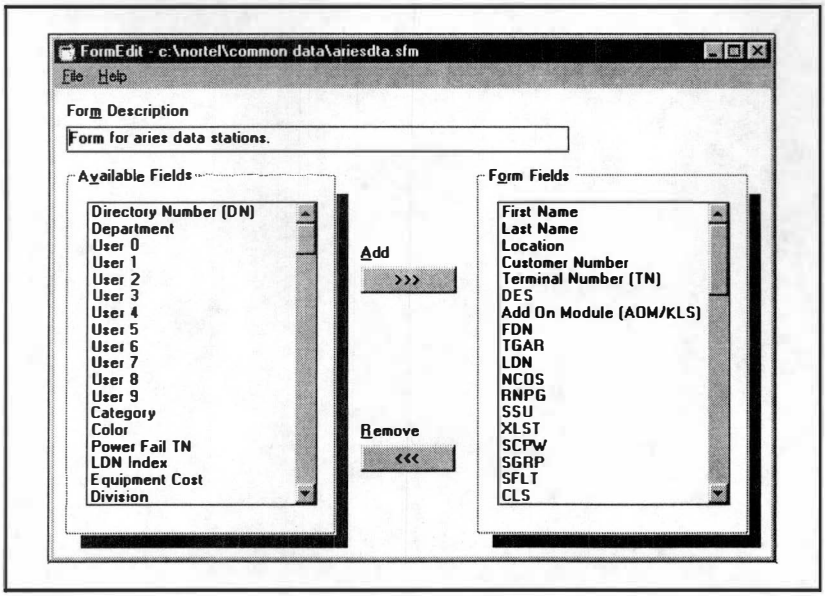
- ARIESDTA.SFM: designed for M2xxx and M3xxx data stations
- VOICE.SFM: designed for all types of voice stations (single and multi-line)
- Default form: A general-purpose form that includes most station fields. This is a good starting point for a form with many fields. You choose to use this form by selecting the Default Form check box.

Note: The sample forms provided with MAT are a good starting point for many forms you might create. Be sure to rename the form when you save it, however. Subsequent versions of MAT will use the same default filenames, so any files you create using the default file names will be overwritten, and thus lost.

4 Select the form from the list box. Click OK.

The FormEdit dialog opens.

Figure 80
FormEdit window (M2xxx and M3xxx data stations)



5 From the Available Fields list, select the field you wish to include in the form, and click **Add**.

The field moves to the Form Fields list.

Alternately, you can select one or several fields to click and drag to move from the Available Fields list to the Form Fields list.

6 Move all the desired fields to the Form Fields list.

To change the order of the fields, click and drag the item up or down in the list.

To remove an item from the list, click and drag from the Form Fields list to the Available Fields list, or select the item and click **Remove**.

7 When the Form Fields includes all the desired fields in the correct order, type a descriptive phrase in the Form Description text box.

Note: This is a phrase to help you remember the form's usage, not the filename.

8 Choose **File - Save As** to save the modified form file. <Alt>F-A

Alternately, to exit the forms editor without saving the form, choose **File - Close**. A warning box prompts whether you wish to save the changes before exiting the editor.

Appendix A: Feature Groups and MNEMONICS

When configuring a station, you can set classes of service or key features by using the **Feature** button. Features have been combined into Feature Groups. This table helps identify which feature group contains a particular feature or key feature.

Features and Feature Groups

Feature Mnemonic	Feature Group	Feature Description
AAA	HANDSFREE	Automatic Answer Back
AACD	ACD_ANALOG	Meridian Link Associated ACD Agent
ABDA	CALL_ACCT	Call Detail Records on Abandon
ADCP	AMP	All-Digital Connection Prefix - Discontinued
ADV	MAINT	Data Port Verification
AGTA	ACD_ANALOG	ACD Agent Analog Telephone
AHA	CALL_HOLD	Automatic Hold
ALDR	AMP	M3000 Directory Lock - Discontinued
AOS	ACD_SP	Observation of Supervisor
ARHA	CALL_HOLD	Audible Reminder of Held Call
ASCA	OH_ALARM	Off-Hook Alarm Security

Feature Mnemonic	Feature Group	Feature Description
AST	M_LINK	Meridian Link Associated DN Key
AST	M_LINK	Meridian Link Associated Set
AUT	DTA_OPE1	Auto Answer
AUTB	DTA_OPE1	Auto-Baud
AUTH 1	SSAU	Authorization code 1
AUTH 2	SSAU	Authorization code 2
AUTH 3	SSAU	Authorization code 3
AUTH 4	SSAU	Authorization code 4
AUTH 5	SSAU	Authorization code 5
AUTH 6	SSAU	Authorization code 6
AUTU	SSAU	Station Specific Authorization codes
BAUD	DTA_OPE1	Data Baud Rate
BIMP	SYS_ENGR	Balance Impedance for XOPS units
C6A	CALL_MODIFY	Conference-Six Party
CAC	CHINA_1_SIG	Category Code for CNI on Outgoing MFC Trunks
CCSA	HOSP_GUEST	Controlled Guest Telephone
CDEN	HARDWARE	Card Density
CDEN	HARDWARE	Card Density
CDMA	CALL_TRACE	External Station Activity Record
CFHA	CALL_REDIR	Call Forward/Hunt Override
CFTA	CALL_REDIR	Call Forward & Hunt by Call Type (Internal / External)
CFXA	CALL_REDIR	Call Forward External
CFXA	CALL_REDIR	Call Forward External

Feature Mnemonic	Feature Group	Feature Description
CLK	DTA_OPE1	External Tx Data Clock for MCA/MCU
CLS	NET_ACCESS	Trunk/Call Type Access Restriction
CLTA	MAINT	Network Call Trace
CMSA	M_LINK	Command and Status Link
CNDA	DISPLAY	Call Party Name Display
CNIA	HOSP_GUEST	Call Number Information
CNTA	ACD_AG_SP	Network ACD Countdown
CPFA	CALL_MODIFY	Forced Camp-On From This Set
CPTA	CALL_MODIFY	Forced Camp-On To This Set
CRA	GRP_HUNT	Continuous Ring
CRCS	NET_ACCESS	Flexible Code Restriction Class
CWA	CALL_WAIT	Call Waiting -- from Incoming Trunk
CWNA	ACD_ANALOG	ACD Call Waiting Notification
DCD	DTA_OPE1	Dynamic DCD
DCLP	CALL_HOLD	Dealer Conference Loop
DDGA	CLIP_CLIR	Present/Restrict Calling Number
DDS	DISPLAY	Digit Display
DELA	CALL_HOLD	Dealer Allowed
DEM	DTA_OPE1	Data Equipment Mode
DES	ADMIN	1-6 Character Designator
DGRP	M_LINK	Device Group for AST set
DIG	INTERCOM	Dial Intercom Group<space>Member
DIP	LIN_SPV_SIG	Dialing Method

Feature Mnemonic	Feature Group	Feature Description
DIP	LIN_SPV_SIG	Dialing Method
DLNG	DTA_OPE1	Data Port Language
DLO	SYS_ENGR	Digital Long Line or Short Line
DN	DIRECTORY	Station Directory Number
DNDA	DISPLAY	Dialed Number Name Display
DPUA	CALL_PICKUP	Directory Number Pickup
DRG1	CALL_ALERT	Distinctive Ringing Tone
DSI	MERIDIAN_PTE	Data Service Access - Discontinued
DTA	DATA_PORT	Data Line
DTAO	DATA_PORT	Meridian. Digital Telephone Data Option
DTR	DTA_OPE1	Force Data Terminal Ready
DTYP	AMP	Data Station Type - Discontinued
DUP	DTA_OPE1	Full/Half Duplex
EFD	CALL_REDIR	CFNA DN for External Calls with CFTA
EHT	CALL_REDIR	Hunt DN for External Calls with CFTA
EHTA	HOT_LINE	Enhanced Hot Line
EXR1	CALL_ALERT	Executive Distinctive Ringing
FBA	CALL_REDIR	Call Forward Busy for DID Calls
FCAR	CALL_ACCT	Force Charge Account
FDN	CALL_REDIR	Flexible Call Forward No Answer DN
FITA	CALL_ALERT	Flexible Incoming Tone
FNA	CALL_REDIR	Call Forward No Answer
FRN	LANG	English or French for M2317

Feature Mnemonic	Feature Group	Feature Description
FSVC	OH_ALARM	Forced Out-of-Service OHAS DN Index
GPUA	CALL_PICKUP	Group Pickup
HBTA	CALL_REDIR	Hunt by DID Call Type
HDLC	DTA_OPE1	HDLC/Bisync for V.25bis Synchronous Data Call Controller - CA/MCU
HFA	HANDSFREE	Hands Free - M2616
HOT	DTA_OPE1	"Hotline" - Autodial via DTR or <CR>
HPR	SYS_ENGR	Station Priority for Dialtone
HSPA	HOSP_MAN	Hospital Room with DID Number
HTA	CALL_REDIR	Hunting
HUNT	CALL_REDIR	Hunt DN - All Calls
IAMA	ICP	Intercept Computer Answering M
IAPG	M_LINK	Meridian Link Unsolicited Status Message Group
ICDA	CALL_ACCT	Call Detail Records on Internal Calls
ICT	ICP	Intercept Computer Terminal/Processor Link
IMA	IMS	IMS Attendant with Auxiliary Processor Link
INT	DTA_OPE1	Inter-working with SL100 Data Modules
IPNA	ICP	Intercept Position
IRA	LSEL	Incoming Ringing Line Selection
IRGA	ICP	Intercept Computer Interrogation Set
ITNA	M_LINK	Idle TN for Third Party Application
KBD	DTA_OPE2	NT Menu Keyboard Dialing Available
LANG	HOSP_GUEST	Language for Automatic Wake Up

Feature Mnemonic	Feature Group	Feature Description
LDN	CUST_TEN	Departmental LDN
LDN	CUST_TEN	Departmental LDN
LDTA	LIN_SPV_SIG	Line Disconnect Tone
LHK	CALL_REDIR	Last Hunt Key for Short Hunt
LLCN	AUTOVON	Line Load Control
LNA	AUTO_CALL	Last Number Redial
LNRS	AUTO_CALL	Last Number Redial Size
LOL	SYS_ENGR	Long Line or Short Line
LPA	MSG_SVC	Message Waiting Lamp
LPK	LSEL	Last Key Scan for Auto Line Selection
LTN	IMS	IMS Logical TN and APL No.
LVXA	LOGIVOX	LOGIVOX Digit Display
MCRA	GRP_HUNT	Multiple Call Arrangement DN
MCTA	CALL_TRACE	Malicious Call Trace
MINA	MIN	Message Intercept Treatment
MLWU_LANG	HOSP_GUEST	Language for Automatic Wake Up
MOD	DTA_OPE2	Modem or Network Sync Clock
MODL	INSTALL	Model Number
MPHI	DATA_PORT	MCU used as MPH interface
MPR	AMP	Modem Pool Route Number - Discontinued
MRA	HOSP_GUEST	Message Registration
MTA	MAINT	Maintenance Set
MWA	MSG_SVC	Message Waiting at Message Service

Feature Mnemonic	Feature Group	Feature Description
NAMA	CLIP_CLIR	Present/Restrict Calling Name
NCOS	NET_ACCESS	Network Class of Service
NIA	LSEL	Incoming Non-ring Line Preference
NRCA	NITE_SERVICE	Forced Camp-On Night Class Restriction
NROA	NITE_SERVICE	Priority Override Night Class Restriction
NRWA	NITE_SERVICE	Call Waiting Night Class Restriction
OHID	OH_ALARM	Off-Hook/Interdigit OHAS DN Index
OLA	LSEL	Outgoing Line Preference
OPS	SYS_ENGR	On/Off Premise Extension
OPX	SYS_ENGR	On/Off Premise Extension
OVDA	CALL_MODIFY	Override Another Busy Station
PAR	DTA_OPE2	Parity for NT Menu Dialing
PBDO	DTA_OPE2	Port Busy on DTR Off
PDN	CLID	Calling Line ID from Prime DN
PLEV	CALL_MODIFY	Override Priority Level
POA	CALL_MODIFY	Privacy Override on Multiple Appearance DN
PRI	ACD_AG_SP	ACD Agent Priority Level
PRI	ACD_AG_SP	ACD Agent Priority Level
PRM	DTA_OPE2	Terminal User Prompts
PRSA	GRP_HUNT	Priority Call Pick-up Station
PSDS	DTA_OPE2	Public Switched Data Service
PSEL	DTA_OPE2	Starting Protocol Selection
PUA	CALL_PICKUP	Pickup Ringing Number in Home Group

Feature Mnemonic	Feature Group	Feature Description
RCC	NET_ACCESS	Restricted from Receiving Collect Calls
RCO	CALL_REDIR	No-Answer Ring Cycle Index
RDI	NET_ACCESS	Restricted from Receiving DID
RLFA	LOGIVOX	Reverse Lamp Flash
RNPG	CALL_PICKUP	Ringing Number Pick-up Group
RTS	DTA_OPE2	Assert Request To Send
SCI	CUST_TEN	Station Category Index
SCPW	STN_CTRL	Station Control Password
SFA	CALL_REDIR	Second Level CFNA
SFDN	SECRETARIAL	Secretarial Forwarding DN
SFLT	SECRETARIAL	Secretarial Filtering Boss/Sec
SGRP	NET_ACCESS	Scheduled Access Restriction Group
SMSA	MSG_SVC	Standalone Mail Message Server
SPID	ACD_AGENT	Supervisor Position ID
SPKA	CALL_HOLD	Call-On-Hold Speaker
SPV	ACD_AG_SP	ACD Supervisor/Agent
SPWD	SSAU	Secure data password
SSU	AUTO_CALL	System Speed Call List Number
SWA	CALL_WAIT	Call Waiting from a Station
TEN	CUST_TEN	Multi-Tenant Number
TENA	CUST_TEN	Tenant Service
TGAR	NET_ACCESS	Trunk Group Access Restriction
THFA	NET_SIGNAL	Centrex Switchhook Flash

Feature Mnemonic	Feature Group	Feature Description
TIMP	SYS_ENGR	Termination Impedance for XOPS
TN	HARDWARE	Terminal Number
TOV	DATA_PORT	Data Call Forced Disconnect Timer
TRAN	DTA_OPE2	Asynchronous or Synchronous
TSA	CALL_MODIFY	Three Party Service
TVA	TRUNK_VERIF	Trunk Verification from Station
USMA	ACD_AG_SP	Meridian 911 position
USRA	CALL_REDIR	User Selectable Call Redirection
V25	DTA_OPE2	V.25bis Call Control
VLL	DTA_OPE2	Virtual Leased Line
VMA	ACD_M_MAIL	Virtual Message Agent
WIRE	DATA_PORT	DAC Wire Test Mode
WTA	PRIVACY	Warning Tone
XFA	CALL_MODIFY	Call Transfer or Attendant Recall
XFA	CALL_MODIFY	Call Transfer or Attendant Recall
XHA	CALL_HOLD	Exclusive Hold
XLST	NET_ACCESS	Pretranslation Group
XRA	AUTO_CALL	Ring Again

Key Features

Mnemonic	Feature Group	Key Cap	Key Feature Description
AAG	ACD_SP	Answer Agent	ACD Answer Agent
AAK	HANDSFREE	Auto Answer	Automatic Answer Back
ACD	ACD_AG_SP	In-Calls	Auto. Call Distribution
ACD	ACD_AG_SP	In-Calls	Auto. Call Distribution
ACNT	ACD_AG_SP	Account No.	ACDD Account Code
ADL	AUTO_CALL	Auto Dial	Auto Dial
ADL	AUTO_CALL		Auto Dial
AGR	ACD_AG_SP	Load Mgt.	Agent X Key
AGT	ACD_SP	Agent	ACD Agent
AMG	ACD_SP	Answer Emergency	ACD Answer Emergency Call
AO3	CALL_MODIFY	Conference	3-Party Conference
AO6	CALL_MODIFY	Conference	6-Party Conference
ARC	AUTO_CALL	Attendant Recall	Attendant Recall
ASP	ACD_AGENT	Supervisor	ACD Supervisor call
ATW	ACD_AG_SP	Wait Threshold	ACD Call Waiting Time Threshold
AWC	ACD_AG_SP	Call Wait	ACD Calls Waiting
BFS	SECRETARIAL	Fwd/Busy Stat	Forward/Busy Status
BFS	SECRETARIAL	Fwd/Bsy Stat	Forward and Busy Status
CA	CALL_MODIFY	Conf Auto	No Hold Conference/Autodial
CAS	CUST_TEN	CAS	Centralized Attendant Service
CFW	CALL_REDIR	Forward	Forward All Calls

Mnemonic	Feature Group	Key Cap	Key Feature Description
CFW	CALL_REDIR	Forward	Forward All Calls
CHG	CALL_ACCT	Charge	Charge Account
CH_D	CALL_MODIFY	Conf Hot	No-Hold Conference & Hot Line Direct
CH_L	CALL_MODIFY	Conf Hot	No-Hold Conference & Hot Line via List
COS	HOSP_ADMIN	Cont COS	Controlled COS
CPN	CALL_ACCT	Call No.	Calling Party Number
CPND	HOSP_GUEST	CPNDbyPMSI	Guest Name Updated via PMSI
CS	CALL_MODIFY	Conf Speed	No Hold Conference Speed Call
CWT	CALL_WAIT	Call Wait	Call Waiting
DAG	ACD_SP	Disp Agent	ACD Display Agents
DCFW	CALL_REDIR	Default Fwd	Default Call Forward
DIG	INTERCOM	Intercom	Dial Intercom
DPU	CALL_PICKUP	DN Pickup	DN Pickup
DRC	CUST_TEN	DID Ctrl	DID Route Control
DSP	DISPLAY	Display	Digit Display
DWC	ACD_AG_SP	Disp Queue	Display ACD Queue Statistics
EFD	CALL_REDIR	XFwdNoAnsDN	Fwd No-Answer DN for External Calls
EHT	CALL_REDIR	XHuntDN	Hunt DN for External Calls
EMR	ACD_AGENT	Emergency	ACD Emergency
ENI	ACD_SP	Interflow	ACD Enable Interflow

Mnemonic	Feature Group	Key Cap	Key Feature Description
EOVR	CALL_MODIFY	Override	Enhanced Override
FAXS	FAX	FAX Server	FAX Server
FDN	CALL_REDIR	FwdNoAnsDN	Forward No-Answer DN
FLH	AUTOVON		AUTOVON Flash
FOV	AUTOVON		AUTOVON Flash Override
GHD	GRP_HUNT	Hunt Deact	Group Hunt Deactivate
GPU	CALL_PICKUP	Grp Pickup	Group Pickup
GRC	AUTO_CALL	Group Call	Group Call
HOT_D	HOT_LINE	Hot Line	Hotline (Direct)
HOT_D_2WAY	HOT_LINE	Hot Line	Two-Way Hot Line (Direct)
HOT_L	HOT_LINE	Hot Line	Hot Line (List)
HOT_L_2WAY	HOT_LINE	Hot Line	Two-way Hot Line (List)
ICF	CALL_REDIR	Int. Fwd	Forward All Internal Calls
IMM	AUTOVON		AUTOVON Immediate
LNG	DISPLAY	Language	Language Toggle
LNK	AUTO_CALL	Last No.	Last Number Redial
LSPK	CALL_HOLD	Loud Speaker	Loud Speaker
MCK	MSG_SVC	Msg Cancel	Message Waiting Cancellation
MCN	DIRECTORY	PARM	Multiple Call Non-ringing
MCR	DIRECTORY	PARM	Multiple Call Ringing
MIK	MSG_SVC	Msg Indic	Message Waiting Indication
MRK	HOSP_ADMIN	Msg Reg	Message Registration
MSB	ACD_AG_SP	Pos Busy	Make Set Busy

Mnemonic	Feature Group	Key Cap	Key Feature Description
MWK	MSG_SVC	Message	Message Waiting Autodial
NHC	CALL_MODIFY	N. H. Conf	No Hold Conference
NRD	ACD_AG_SP	Not Ready	Not Ready
NSVC	ACD_SP	Night	ACD Night Service
OBV	ACD_SP	Observe	ACD Observe
OVB	CUST_TEN	Att Ovf Bsy	Attendant. Overflow Position Busy
OVR	CALL_MODIFY	Override	Busy Station Override
PHD	CALL_HOLD	PermanentHld	Permanent Hold
PRK	CALL_MODIFY	Park	Call Park
PRS	CALL_MODIFY	Priv Rls	Privacy Release
PRY	AUTOVON		AUTOVON Priority
PVN	DIRECTORY	PARM	Private Line Non-ringing
PVR	DIRECTORY	PARM	Private Line Ringing
RAG	ACD_SP	Call Agt	ACD Call Agent
RCK	RINGING_CHG	Ringing Chg	Ringing Change
RDL	AUTO_CALL	Stored No.	Stored No. Re-dial
RDL	AUTO_CALL	Stored No.	Stored No. Re-dial
RGA	AUTO_CALL	Ring Again	Ring Again
RLS	CALL_MODIFY	Rls	Release
RMK	HOSP_ADMIN	Room Key	Room Status
RNP	CALL_PICKUP	Call Pickup	Ringing Number Pick-up
RPAG	RPS	Radio Paging	Radio Paging Key
SCC	AUTO_CALL	Speed Call	Speed Call Controller

Mnemonic	Feature Group	Key Cap	Key Feature Description
SCN	DIRECTORY	PARM	Single Call Non-Ringing
SCR	DIRECTORY	PARM	Single Call Ringing
SCU	AUTO_CALL	Speed Call	Speed Call User
SIG	SECRETARIAL	Buzz	Buzz Secretary
SSC	AUTO_CALL	Sys Speed	System Speed Call Controller
SSU	AUTO_CALL	Sys Speed	System Speed Call User
TAD	DISPLAY	Time Date	Time and Date
THF	CALL_MODIFY	CTX Access	Centrex Switchhook Flash
TRC	CALL_TRACE	Trace	Malicious Call Trace
TRN	CALL_MODIFY	Transfer	Call Transfer
USR	CALL_REDIR	Redirect Ctl	User Selectable Call Redirect
UST	MSG_SVC	Status	User Status
VCC	HANDSFREE	Voice Call	Voice Call
WUK	HOSP_GUEST	Wake Up	Guest Entry of Wake Up Call

Meridian Administration Tools

Station Administration

User Guide

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Meridian Administration Tools

Call Accounting

User Guide

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Introduction

Welcome to Call Accounting. Use this application to collect call records from a Meridian 1 telephone switch and cost this call information to provide meaningful reports. These will provide details on the actual usage of your telephone system for assessing the effectiveness of your telephone services. This will help you to assign calls to specific groups or departments for individual billing purposes and other types of cost allocation.

This user guide provides basic information on setting up and running Call Accounting. Along with a brief outline of its main functions, this user guide also contains examples and procedures to assist you in setting up Call Accounting for your system. This user guide assumes that you have a user level knowledge of the Windows 95 operating system. In order to ensure optimum operation of this application, read the material in this user guide before attempting to run Call Accounting.

Overview

Call Accounting supports the Meridian line of telephone switches. The Meridian 1 must be equipped with a suitable CDR port for proper connection to the CDR buffer unit.

Once you collect the call records either directly from the Meridian 1 or from the CDR buffer unit, the records must be costed, collated, sorted and printed on a report. This call detail information will help you achieve the following goals.

— The system provides details on the actual telephone usage. Management can isolate individual users and departments which are not properly utilizing the telephone system through misuse or neglect.

— It provides usage details for cost allocation within the organization or for client billing purposes.

— Management can use the information to determine which telephone company services are not being utilized. This analysis will allow you to adjust your telephone services to suit your needs resulting in a savings to your organization.

CDR buffer units

Call Accounting can either collect CDR data directly from the Meridian 1 or through a buffer unit. The buffer unit is used to continuously collect data from the Meridian 1 and store it for later collection and processing by Call Accounting. Buffer units provide an effective method of collecting CDR data quickly and accurately.

CDR data is saved to system specific files so that multiple buffer units (multiple Meridian 1 switches) can be supported concurrently by Call Accounting. Where required, the collection devices can connect to the Meridian 1 via its RS-232 port and connect to the PC using a supported modem. It is recommended that the buffer unit contains battery backup power in the event of a power failure. Refer to the buffer unit's reference user guide for more information.

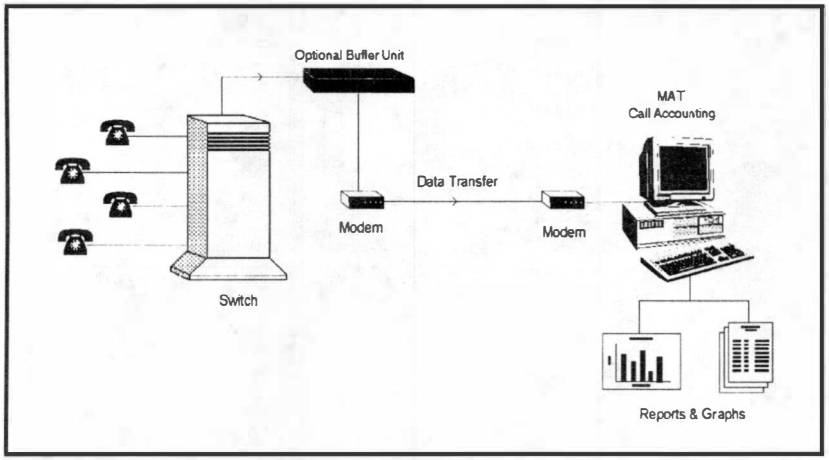
Note: It is recommended that a buffer box be used for CDR data collection from the Meridian 1. When a buffer box is used, the CDR data is continuously sent and stored on the buffer box. Periodically, the data will be collected from the buffer box to the PC, usually on a daily basis. A buffer box is not required to use Call Accounting, however, if you choose to collect the data directly to the PC without the buffer box, there is a potential for losing CDR data if the PC is rebooted or shut down.

Call records

Every time a call is made or received, the Meridian 1 records it and creates a call record. Call Accounting can be set up to collect this call record, apply its appropriate costs, assign a department or division to it and present it on a report.

The following schematic displays the movement of a call record from the Meridian 1 to the reports.

Figure 1
System block diagram



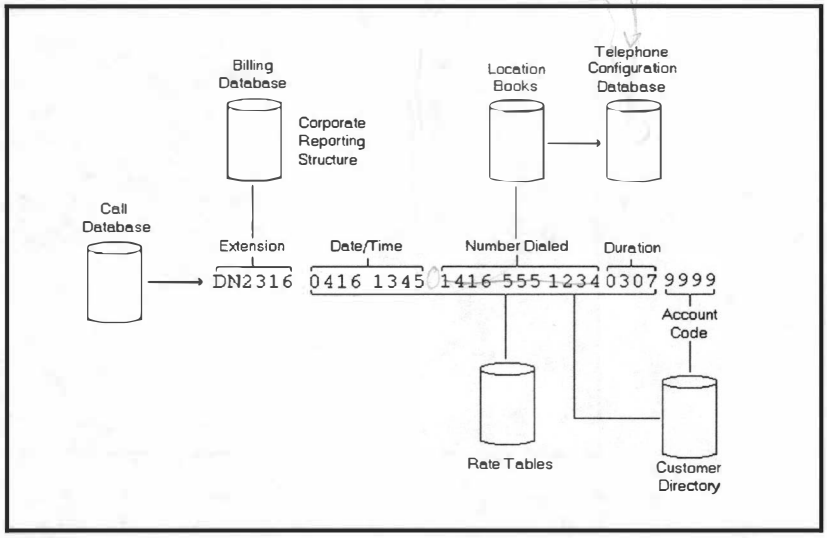
Call record information travels between the buffer unit and the PC through optional modems. This is useful if you are collecting call records from a distant location. If you are connected directly to the buffer unit, simply connect it to your PC's communications port.

The call detail records that you collect from the Meridian 1 or buffer unit contain the information you need to cost the calls and allocate them to the proper users. These records contain such information as the date, time, duration, digits dialed, extension and trunk of a call.

By collecting the data from the Meridian 1 or buffer unit, Call Accounting creates the Call Database. Each time a data collection is performed, Call Accounting updates the Call Database. The information from this database is then indexed to provide the proper call costing information.

The following diagram provides a breakdown of the information found in each call record.

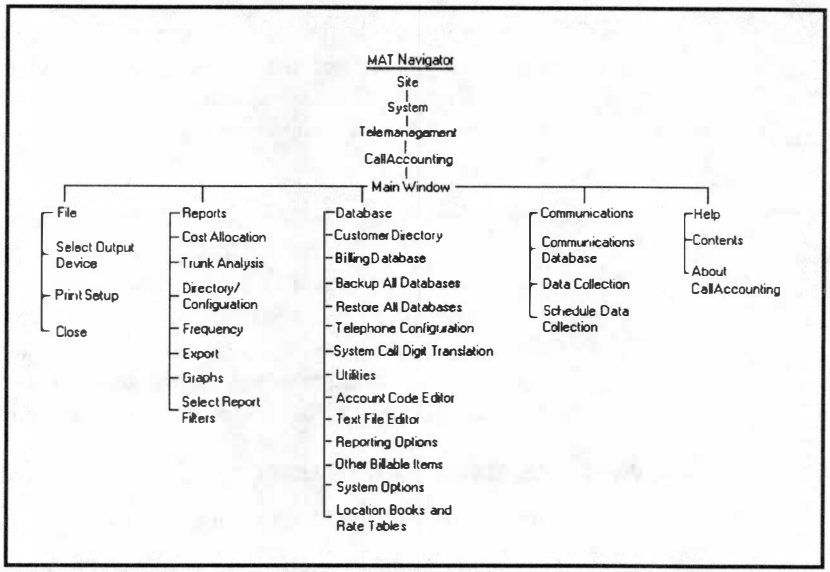
Figure 2
Sample call record allocation



Schematic of menus & functions

The following is a schematic of the Call Accounting menus as they are accessed from the main window.

Figure 3
Schematic of menus & functions



File: This drop-down menu contains commands used to specify your output device and printer configuration and close Call Accounting.

Reports: This drop-down menu contains commands used to select report filters and generate reports and graphs to the selected output device.

Database: This drop-down menu contains commands used to edit and maintain the Call Accounting databases and directories, manage call records and access location books and rate tables.

Communications: This drop-down menu contains commands used to set up and perform data collection.

Help: This drop-down menu contains commands to access the Windows 95 Help function listing the Call Accounting help topics.

About this user guide

This user guide is intended to provide you with an introduction to the MAT Call Accounting application as well as an overview of its major functions. It discusses how you can best use it to easily manage CDR data, update its databases and generate meaningful reports. It includes a schedule of routine operations and a sample setup to assist you in configuring your version of Call Accounting.

This user guide does not discuss each Call Accounting function and command in detail. It only discusses the major functions and how they are accessed. For detailed information on each Call Accounting function, use the on-line Help function. You can use the Help function to obtain help for topics either directly or via its index and word-search functions. While running Call Accounting, you can obtain context-sensitive help on any topic you require by simply clicking **Help** from a specific dialog or window.

Conventions used in this user guide

This user guide uses the following terms:

— *Computer system* refers to the hardware and software of an IBM-PC™ or 100% compatible PC.

— *Windows* refers to Microsoft Windows 95™.

— *Mouse* refers to any standard PC pointing device. Common mouse actions include *point*, *click*, *right-click* and *double-click*.

— Standard Windows terminology includes: *icon, window, dialog box* (or *dialog*) and *menu*.

— Angle brackets denote a single keyboard key. For example, <Esc> denotes the Escape key, labeled Esc on PC keyboards. Angle brackets with multiple keys denote keyboard keys to use simultaneously. For example, <Ctrl-Alt-Del> denotes the key sequence for rebooting a PC.

— **This font** is used to designate buttons, menu choices and information you are to enter.

Getting Started

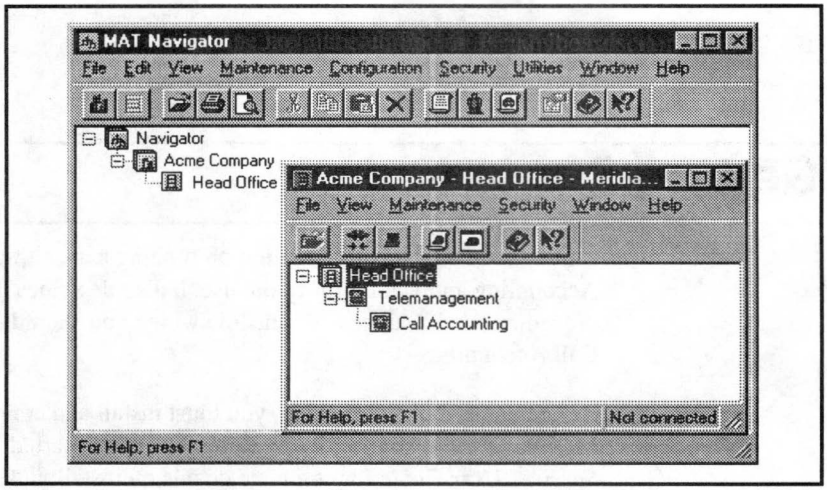
This chapter contains information on running and setting up the Call Accounting application for initial use. It also describes the main operating procedures and a suggested schedule which you should follow when using Call Accounting.

Before using Call Accounting, you must install and configure it as part of Meridian Administration Tools. Refer to Getting Started in the *MAT Common Services User Guide* for complete details on installing Call Accounting and assigning it to a site and system.

System access

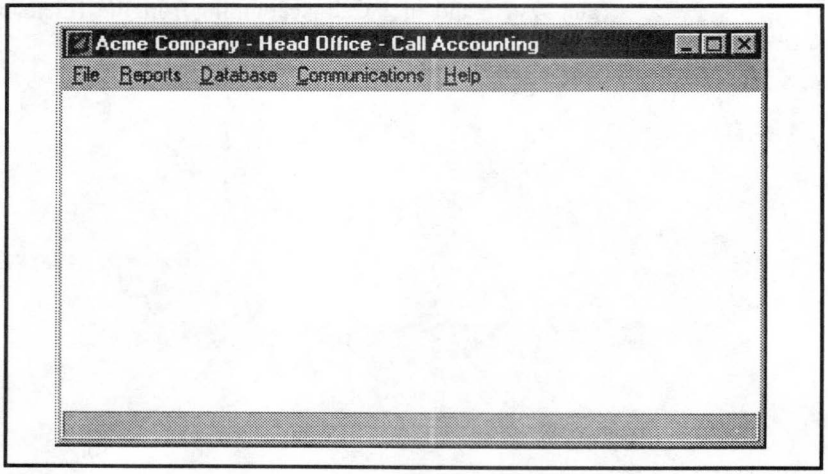
To access Call Accounting from the MAT Navigator, click the desired site and system and click Call Accounting from the Telemanagement menu.

Figure 4
MAT Navigator



The Call Accounting main window will appear.

Figure 5
Call Accounting main window



When you access Call Accounting in future sessions, it may prompt you to update its files. For example, if you access Call Accounting after changes have been made to the Station File, then it will prompt you with the message: **Changes have been made to the Station File. Do you want to resynchronize Billing Database?**. In this case, click **Yes** to update the Billing Database with the Station File and start Call Accounting; or click **No** to continue without updating the database.

System configuration

The section will briefly describe the steps involved in initially setting up Call Accounting for data collection and report generation. Since the system on which Call Accounting is assigned has already been set up for communications, you will not need to enter any communications parameters at this time. The Communications Database will already have been updated.

For complete details on the functions outlined in these steps, refer to your on-line Help.

Step 1: Enter Reporting Options

The first step in configuring your system is to set up your reporting options. These options will identify the cost fields for your telephone configuration and define the layout of your reports.

To enter the reporting options for this system, click **Reporting Options** from the Database drop-down menu. The Reporting Options dialog will appear displaying check boxes and fields in which you will enter your reporting information. Click each option's check box to enable (include) it. To disable (exclude) each option, click the options' check box again and turn them off.

Step 2: Enter Telephone Configuration

The Telephone Configuration Database is the key database for costing in Call Accounting. When you enter this data, ensure that it accurately represents the telephone system which is being modeled.

Use the Telephone Configuration functions to enter information for your DDD, DID, Tie/FX trunk lines, free local calling exchanges, etc. This will supplement the data entered in the previous step.

For additional help in setting up your own configuration, please refer to the chapter entitled: *Sample Configuration.* This chapter provides a step-by-step procedure for entering a telephone configuration and can be used as a template for your own configuration.

Step 3: Update Directories

In order for your call records to accurately link to the proper employees and their extensions as well as your company's customers, you should update the Billing Database and Customer Directory with the latest employee and customer information.

Billing Database: The Billing Database contains a list of employees linked to specific extensions on the Meridian 1. When a call record is generated, it needs to be associated with a specific extension. The Billing Database contains this information as well as the division to which this employee belongs. If you have installed the MAT Station Administration application, then this is initially populated using the Set Database and can be modified periodically as required.

To view this database and add any additional records, click **Billing Database** from the Database drop-down menu and select the records from its grid.

Customer Directory: The Customer Directory contains a list of your company's customers and provides additional information for your reports. For example, this customer list can consist of frequently called numbers to further highlight detail reports. Call Accounting can identify customers by their account code or telephone number.

To view this database and add any additional records, click **Customer Directory** from the Database drop-down menu and select the records from its grid.

This completes the main steps required to initially set up Call Accounting for data collection and reporting.

Operating Procedures

Once you have initially updated the main databases and directories with your company's information, all that you need to do is to collect data and generate reports regularly. Since Call Accounting is used to perform these activities using a routine schedule, you should establish your own schedule of activities to allow for regular data collection and reporting. As well, there are a series of database maintenance functions which you should include in this schedule to keep the reports accurate.

This section outlines the standard procedures which you should incorporate into your regular operational routines. It provides a model for you to follow during the operation of Call Accounting. Use the following schedule as an outline for your own routines.

Task	Frequency
Data Collection	Daily
Report Generation	Monthly
Directory Updates	
— Billing Database	Weekly
— Customer Directory	Weekly
— Telephone Configuration	Monthly
Data Management	
— Backup All Databases	Weekly
— Restore All Databases	When recovering lost data
Database Maintenance	
— Archive Call Database	Monthly
— Purge Call Database	Monthly
— Restore Call Database	When recovering lost data

Data Collection

The collection of call records (data) from the Meridian 1 or optional Call Detail Recording (CDR) buffer unit to the computer is an important task of your Call Accounting operations. Without this detailed calling information, Call Accounting cannot produce detail reports.

Run the Data Collection procedure on a daily basis. If there is a problem with the flow of data from the Meridian 1, the system will warn you of the malfunction within a short time period. This early detection can provide for quick corrective action and minimal data loss.

To collect data for a system, click **Data Collection** from the Communications drop-down menu. It will invoke the Data Supervisor to communicate with the Meridian 1 (or buffer unit) and initiate the data collection.

During the data collection process, Call Accounting collects data from the switch or optional CDR buffer unit and builds that data into a non-formatted Call Detail file called DETAIL1.DAT. It then merges the Call Detail file into the Call Database MDR1.DAT through a process called Indexing.

Depending on the size of the buffer unit, communications would usually take place nightly when the system adds data to the Call Detail file. Less frequent collection is possible, provided the buffer units do not reach capacity.

> *Note:* If the buffers do reach capacity and data collection has not been initiated, the system may lose valuable call records. Remember to collect data regularly.

The status of each data collection procedure is tracked through a file called the Communications Log REPLOG1.LOG and is particularly important with multi-site operations. These logs can provide a history which may be useful in solving a data collection problem.

Once CDR data has been collected from the Meridian 1, you are ready to generate reports based on this information.

Data collection troubleshooting

During data collection, Call Accounting will display the number of call records it has collected. If this number fails to increment or remains at zero, then Call Accounting has not been able to communicate with the buffer unit. In this case take the following actions.

— Ensure that the modem's **AA** (auto-answer) light is on.

— Make sure that the communications port which you specified in the Communications Database is the same as the connection on the back of your PC (the port on which you connected your cable).

The following is a list of common data collection problems.

— Data files are in use by another network workstation or the Call Database editor is opened.

— Communications parameters are not set up properly for the system using the System Properties function of the MAT Navigator.

— Data collection parameters are not set up properly in the Communications Database.

— The PC has insufficient disk space for both the Call Detail file and the Call Database.

Report generation

The Call Accounting reports provide information on the details of the call records which were collected from the Meridian 1. They also include information on your system databases and configurations. Once you have collected the call records from the Meridian 1, you should then generate your detail and summary reports to cost and display their information.

Step 1: Select Output Device

Call Accounting can send reports to a selected output device such as printer, screen or file. To select the output device, click **Select Output Device** from the File drop-down menu and click the desired option button.

If you are sending the reports to the printer, then you can select the type of printer using the Printer Setup function. This function will list all of the printers you have set up for the different ports using the Windows Setup Printer function. To select a printer for Call Accounting, click **Printer Setup** from the File drop-down menu. A dialog will appear prompting you to select a printer and its font style. Select your printer and font from the available list boxes and click **OK** to save these settings and return to the main window.

Step 2: Select Report Filters

Before you generate your reports, you should select the parameters (filters) which determine the data ranges on which the reports are run. This will include only the desired range of data. To enter your reporting filters, click **Select Report Filters** from the Reports drop-down menu. The Select Report Filters dialog will appear listing all the available filters which you can select.

To select the reporting filters, click the command button labeled with the filter name. Another dialog for that filter will appear containing open fields in which you can enter your minimum and maximum ranges. You can include or exclude a filter range. To select a filter range and have the system include its range, click the desired command button, enter the filter range and click **OK** from the range dialog. The Include check box will be turned on next to that filter command button. If you wish to exclude this range, click the **Exclude** check box for the filter.

To save these filters, click **Close** from the Select Report Filters dialog. At the prompt: **Save Changes Before Closing?** click **Yes** and exit to the main window. To exit from this dialog without saving the filters, click **No** when prompted. If you wish to copy this filter file to another file, click **Save As** and enter the new filename in the dialog which appears.

Step 3: Generate reports

Once you have selected your parameters, return to the main menu and click the report type heading (e.g., Cost Allocation) from the Reports drop-down menu. From this cascading menu, click the report you wish to print (e.g., Extension Detail Report). Select the priority through which you wish to sort this report. Click the drop-down list box at each sort priority and select the desired sort items.

When you first run this report, initialize and produce the Summary file. To initialize this file, ensure that the **Initialize summary file** check box is on. To produce this file, ensure that the **Produce summary file** check box is on. If you have not changed any of the report filters for the Call Database, Billing Database, Other Billable Items Database, Customer Directory or Telephone Configuration since the last time you reset the Summary file, then turn off (blank field) these check boxes. To run the report, click **OK**. Call Accounting will now generate the report to the system's current output device.

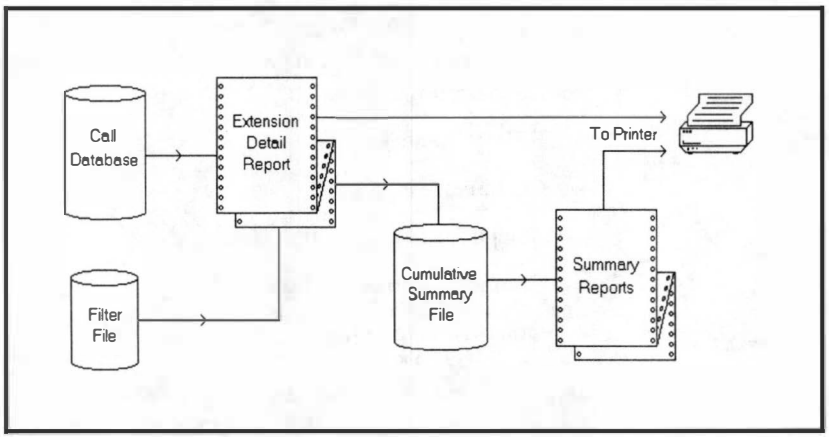
If you wish to schedule a report to run at a specific date and time, click **Schedule**. This will invoke the Scheduler application from MAT Common Services. Use this function to enter the date and time that you wish to run the report. It will then generate it at the selected date and time.

To run a 'month-end' report including the Extension Detail, Department and Division Summary reports, you would run the Extension Detail Report first and initialize the Summary file. This reduces the run time for the summary reports.

> ***Note:*** If you are not generating the Extension Detail Report, be sure to initialize the Summary file when you run the first report. This will ensure that the system will compile the appropriate summary data prior to printing the report.

The following diagram displays the interaction of the major data files during a report generation.

Figure 6
Report generation flow



Directory updates & data management

Call Accounting contains a set of functions to assist you in managing your system's databases. Proper management of data will ensure that your reports contain timely and accurate information. If the Call Accounting databases and directories contain outdated information (e.g., the Billing Database contains employees who are no longer with the company), then the reports will be inaccurate. You should therefore regularly update your databases.

As well, it is important to make backup copies of the main Call Accounting database files for recovery purposes. This way, if your PC loses data (e.g., in case of hardware or disk failure), you can more easily recover the lost data.

The following sections describe the database editing functions as well as the Backup and Restore commands used for the main databases and directories. Since the Call Database requires different maintenance commands, the Archive, Purge and Restore Call Database functions will be discussed in the next section.

You must decide on the frequency of the backup and archive procedures. Base this frequency on the size of your data records and your system capacity. As a rule, you should back up your data once a month.

Directory updates

In order for your Call Database records to be costed and applied correctly, you must periodically update and manage user-definable databases. These include the following:

— Billing Database

— Customer Directory

— Telephone Configuration Database

— Communications Database

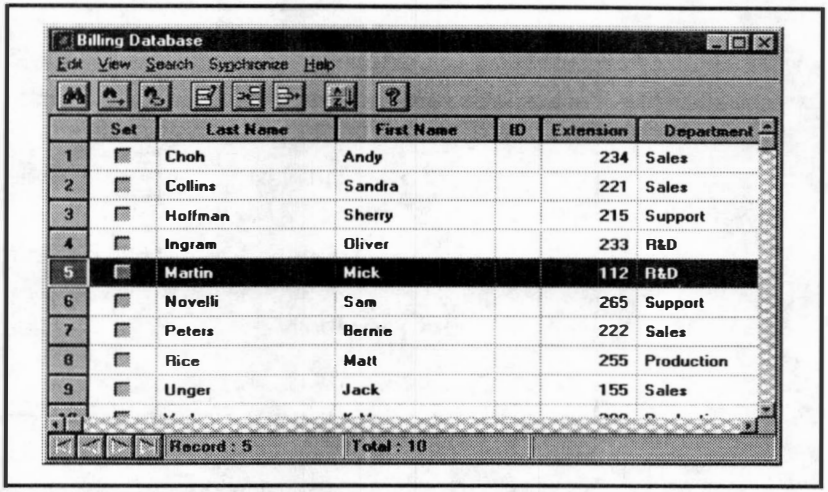
— Other Billable Items

Each database contains an editor with standard features which you can use to edit, insert and delete records. The following sections will describe the common components and features of these database dialogs.

To enter the database information, click the directory name from its appropriate drop-down menu. The database dialog will appear containing a grid in which you can enter the records for that database. It will also contain function tools which you can use to manage these records.

Some directory dialogs will list the position of the current record in the database in relation to the total number of records in the database.

Figure 7
Sample Billing Database



Grids

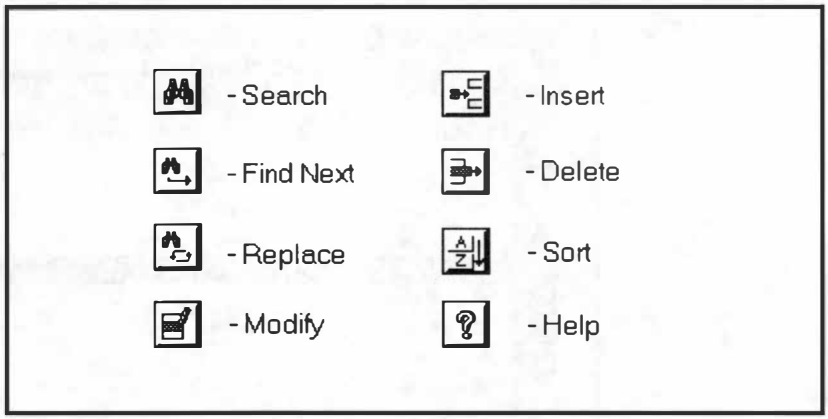
A database record is displayed in the grid of its dialog. A grid is comprised of rows (records) and columns (fields). To scroll through a grid, click its horizontal and vertical scroll bars.

Field Sizes: If you wish to change the grid's proportions, click the row and/or column border and drag it to the new position. Notice that the row (or column) will change size.

Field Positions: If you wish to rearrange the column sequence in a grid, highlight the column by clicking its field header. Next, click the column and drag it while simultaneously pressing the <Ctrl-Shift> keys. The column border will move as you drag the cursor across the grid. Release the cursor to place the column in its new position.

Tools: Each grid contains a toolbar that contains standard editing features such as Search, Replace, Modify, Insert and Delete. These tools can be used instead of selecting a specific function from the grid's menu bars.

Figure 8
Toolbar summary



Insert

To enter a record in a grid, click **Insert** from the Edit drop-down menu. An editor dialog will appear prompting you to enter the record's information. Type in the information in this editor's fields. To save this information and exit from this dialog, click **OK**. This will insert the information into the first available record in the grid. If you highlighted a specific row of the grid, then the system will insert this record above the specified row.

Certain databases will distinguish between adding a record or inserting a record to the database grid.

Add: To enter a record at the end of the database, click **Add** from the editor dialog. To enter a record immediately after a specific record, highlight that record and click **Add**.

Insert: To enter a record at the beginning of the database, click **Insert** from the editor dialog. To enter a record immediately before a specific record, highlight that record and click **Insert**.

Once you insert or add a record, an editor dialog will appear allowing you to enter data into the record's fields. Enter this information as required and click **OK** to save the record. The system will display another blank dialog allowing you to add another record. Once you have added the required records, click **Close** to save this information and exit to the grid dialog. Notice that the record lines in this grid will appear updated.

Modify

To modify a record in the grid, highlight the record by clicking it and clicking **Modify** from the Edit drop-down menu. An editor dialog will appear prompting you to edit the record's information. Click the fields of that record to edit its information and type the new text over the old. To save this information and exit from this editor dialog, click **OK**. The new information will appear in the record of the grid.

Delete

To delete a record from the database grid, click the record row header to highlight it and click **Delete** from the Edit drop-down menu. You can also use the **Delete** icon from the toolbar to delete the highlighted record.

Sort

Use the Sort command to sort the records in the database according to specific criteria. These are based on the database fields. To sort the database, click **Sort** from the Edit drop-down menu. This will access the Sorting Priority dialog in which you can enter the sort criteria for the records (e.g., alphabetically by surname).

To enter the sorting criteria for the database records, highlight the specific criterion from the Available Sorting Fields list box and click the double right arrow (>>) command button. You can also select this criterion by double-clicking the record line. The selected sorting criteria will appear in the **Fields to Sort By** list box. Once you have selected the criteria, click **OK** to initiate the sorting procedure.

Search (Find)

To search for a specific record in the database, click **Find** from the Search drop-down menu. This will access a dialog in which you can enter the search criteria for the desired record. Enter these criteria in the Search For fields and click the **Include** check box for each field to turn it on. Click **OK** to search for the first record matching these criteria. If the system reaches the end of the database without finding a record matching these criteria, it will prompt you with a message: **Search field(s) not found.**

You can also search for records based on minimum criteria. Use the wild-cards (asterisk '*' and question mark '?') to fill in the remaining values for more specific search criteria.

The following example will demonstrate the use of this function.

To search for employees in departments beginning with 'L', click the **Search** icon and perform the following steps.

1 Enter: **L*** in the Department field and click **OK** to start the search procedure. The system will search for the first record containing the 'L' as the first letter in the Department field.

2 Click the **Find Next** icon, to find the next instance of the record matching the current search criteria.

Replace

Use the Replace function to search for a specific record matching a defined search criteria and replace it with another value. To access this function, click **Replace** from the Search drop-down menu tool to access this database's editor dialog. Next, enter the search criteria in each 'Search For' field and enter the values with which you wish to replace them in the adjacent 'Replace By' field. Click the **Include** check box to turn it on and click **OK** to start this procedure.

The following example demonstrates this function.

To change all the records containing the 'Programming' department to 'Development', click the **Replace** icon in the Billing Database dialog and perform the following steps.

1 In the Department Search For field, enter: **PROGRAMMING**. In its Replace By field, enter: **DEVELOPMENT**.

2 Click its **Include** check box to turn it on.

3 Click **OK** to start this function. The system will search for the first record containing 'Programming' in the Department field and replace it with 'Development'.

Replace All: If you wish to replace all records which match certain criteria, click **Replace All** in the Replace dialog. This function will replace every record containing the search criteria without displaying the records on the screen for confirmation.

Prompt On Replace: Click this check box in order for the system to display the records on screen for confirmation. To confirm the replace action, click **Yes**.

Once you have entered the information in the database editor dialog, click **OK** to save it and exit to the previous window.

Summary of steps for directory updates

This section summarizes the steps required to update the three main database files. They are the Billing Database, the Customer Directory and the Telephone Configuration Database. Update these databases on a regular basis in order to keep your reports accurate.

Billing Database

The Billing Database controls the distribution of costs to the different cost centers within the company or organization. It is extremely important to have each extension's charges allocated to the appropriate department or division. Update this directory on a weekly or monthly basis depending on the size of the directory and the frequency of changes.

To avoid any problems, follow these guidelines during your Billing Database updates.

1 From the Reports drop-down menu click **Directory/Configuration** and then click **Billing Database Report**. Choose the desired sort order from the Billing Database Report dialog and choose whether or not authorization codes are to be printed.

2 Print the Billing Database Report.

3 On the hard copy printout of this report, enter the changes that have occurred over the past month (e.g., new department, staff moving to another department, new extensions, etc.).

4 Enter the new changes into the Billing Database.

5 Print the Billing Database Report again and verify your changes. Save this hard copy printout to track changes over a long time frame without having to repeatedly access the system.

Customer Directory

The Customer Directory uses a format similar to the Billing Database. To avoid errors in this directory, print a copy of the directory and check it for errors. Remember to update this directory weekly or monthly depending on its size.

1 Click **Reports** and click **Directory/Configuration**. From this cascading menu, click **Customer Directory Report**.

2 Choose your sort order and print the report.

3 Check the validity of the data and make appropriate changes.

4 Enter these changes in the database (click **Customer Directory** from the Database drop-down menu).

5 Print the new report and save it for future reference.

Telephone Configuration Database

The Telephone Configuration Database contains the information needed to cost services such as DDD and tie lines. Periodically, you may be required to enter changes to ensure the accuracy of your pricing system. These changes may involve edits to the rate tables, carrier pricing templates or to the trunk tables.

The following suggested procedure is similar to that outlined in the Billing Database editor.

1 From the Reports drop-down menu, click **Directory/Configuration** and then click **Configuration Diagnostic Report** to print the Telephone Configuration settings. Ensure that the Print Configuration File Contents and the Print Diagnostic Report check boxes are turned on. Click **OK** to print the report.

2 Check that the information on this report is complete (including the diagnostics at the end of the report).

3 Review the information for accuracy with the appropriate personnel.

4 Make the appropriate changes to the Telephone Configuration Database.

Data management

Call Accounting provides you with tools to back up and restore your main databases. It is important to maintain backup files of these databases on floppy diskettes for security purposes. If your disk drive fails or you erase valuable database files, you can recover this data from your backup diskettes. Storing alternate copies off-site is also beneficial for disaster recovery.

Backup All Databases

If you need to make a backup copy of some or all of the Call Accounting database files, use the Backup All Databases function. The backup command will save the data files specified for the current system.

> *Note:* This will only make a backup copy of the Call Accounting database files. If you wish to backup other MAT system files, then use the application to which the database files belong or use the MAT Site Configuration application.

To run the Backup procedure, click **Backup All Databases** from the Database drop-down menu. Select the drive and directory by typing them into the Destination Directories field of the dialog which appears and click **OK**. The Backup All Databases dialog will appear listing the database descriptions, source filenames and backup filenames for the current system. Choose from the following list of databases to back up.

System Options	General system parameters
Telephone Configuration	Telephone configuration information
Location Book Registry	Defined location books
Carrier Pricing Template	Carrier pricing definitions
Communications Database	Communications Database file
Billing Database	Employee and extension information
Customer Directory	Customer name and account information
Call Detail File	CDR detail data, if any
Call Database	Indexed CDR data using Index file
Index file	Used to index and trace through Call Database
Select Report Filters	Report filter information
Summary File	CDR summary information
Auto Backup	Used if auto backup is activated
Other Billable Items	Additional costs not associated with calls
Report File	Output sent to disk

To make a backup copy of a specific file, turn on the Include check box for that site file. If you wish to make backup copies of all of the files, click **Include All**. If you wish to exclude all the files, then click **Exclude All**.

Confirm Overwrites: Turn this check box on if you wish a confirmation prompt to appear before the system replaces any files existing on the diskette with the same filename as those you are backing up.

Variable Rates File: To make backup copies of any Variable Rate Files, Dial Codes, Charge Bands or Time Bands, click **Variable Rates File**. A dialog will appear listing the various rate filenames. To make a backup copy of a specific file, turn on the Include check box for that site.

International Rates: Click International Rates to make backup copies of any International Rates files.

Holiday File: Click Holiday File to make backup copies of any Holiday Files.

Click **Close** to initiate the backup procedure for these files and exit to the Backup All Databases dialog.

Location Books: To make backup copies of any Location Book files, click **Location Books**. A dialog will appear listing the various Location Book filenames. To make a backup copy of a specific file, turn on the Include check box for that site. Click **Close** to initiate the backup procedure and return to the Backup All Databases dialog.

Backing up to floppy diskettes

If you are backing up to a floppy drive, insert the diskettes as the system prompts you. The Backup All Databases function provides you with two additional options when backing up to a floppy drive:

— Delete Existing Files On Floppy

— Confirm Deletes

Delete Existing Files On Floppy: Turn this check box on if you wish to delete all the files from the current disk onto which you are backing up your files.

Confirm Deletes: If the Delete Existing Files On Floppy check box is turned off, then turn this check box on if you wish the system to prompt you before deleting any files located on the diskette.

> *Note:* Ensure that you label the destination diskettes correctly. When you restore the files, the system will not allow you to restore the files if the diskettes are out of order.

When you are ready to make backup copies of your files, click **OK**.

Restore All Databases

The Restore function allows you to restore any data you may have lost by copying the Call Accounting database files you have previously backed up using the Backup All Databases function.

To restore the files you saved using the Backup function, click **Restore All Databases** from the Database drop-down menu. The Restore All Databases dialog will appear prompting you to enter the drive and directory from which you wish to restore the files (e.g., A:). Enter this information and click **OK**.

To restore a specific file, turn on the Include check box for that site. If you wish to restore all of the files, click **Include All**. If you wish to exclude all the files, then click **Exclude All**.

If you are restoring files from a floppy drive, insert the first diskette in the drive. This contains the directory for these database files. Place the proper diskettes in the drive as the system prompts you.

Confirm Overwrites: Turn this check box on if you wish a confirmation prompt to appear before the system replaces any files existing on the diskette with the same filename as those you are restoring.

Variable Rates File: To restore any Variable Rate Files, Dial Codes, Charge Bands or Time Bands, click **Variable Rates File**. A dialog will appear listing the various rate filenames. To restore a specific file, turn on the Include check box for that site.

International Rates: Click this command button to restore any International Rates Files.

Holiday File: Click **Holiday File** to restore any Holiday Files.

Click **Close** to initiate the restore procedure and return to the Restore All Databases dialog.

Location Books: To restore any Location Book files, click **Location Books**. A dialog will appear listing the various Location Book filenames. Click **Close** to initiate the restore procedure and return you to the Restore All Databases dialog.

When you are ready to restore your files, click **OK**.

Call Database maintenance

The Call Database requires special attention because it contains the call data collected from the Meridian 1 which can potentially become too large to manage easily. Failure to manage this file properly will result in longer processing times and a waste of hard disk space. Since the Call Database records contain specific calling information including their date and time, you can use date and time filters when using the Archive, Purge and Restore functions.

To manage the Call Database file, click **Utilities** from the Database drop-down menu and click **Call Database** from its cascading menu. The following sections describe the Call Database maintenance functions: Archive, Purge and Restore.

Archive Call Database

The Archive function stores your old data to a separate medium providing you with more working memory on your disk.

To archive the Call Database, click **Archive** from the Maintenance drop-down menu of the Call Database dialog. In the Filter fields, enter the minimum and maximum filter ranges. To include a range, click the filter's command button (e.g., **Time**), enter the range and turn on the Include check box for this filter. Repeat this step for all the filters you wish to include.

> *Note:* If you wish to erase the data from your working directory when you archive it (essential if you have limited disk space), turn on the **Purge selected records** check box. This will move the records from the working drive and directory to the archive drive.

To save this filter file, click **Save Filter**. A dialog will appear prompting you to enter the destination drive, directory and filename where you wish to save this filter. Enter the drive and directory in its fields and click **OK** to save the file.

To reuse an existing filter file, click **Load Filter**. A dialog will appear prompting you to enter the filter name. Enter this information in the appropriate fields and click **OK** to load the file.

If you are archiving to a floppy drive, ensure that you place the diskettes in the drive as the system prompts you. Number each disk so you can maintain the proper order of data when restoring.

If you wish to schedule the Archive function at a specific date and time, click **Schedule**. This will invoke the Scheduler application from MAT Common Services. Enter the date and time on which you wish to archive the data. The Scheduler will then perform this activity at the selected date and time.

> *Note:* Remember to run your reports before archiving your data. You may inadvertently archive and remove data needed for a monthly report.

Purge Call Database

If you do not wish to retain past data, use the Purge Call Database function to erase the data and thus reduce the size of the Call Database. The Purge function permanently removes data from the system.

To purge call records from the Call Database, click **Purge** from the Maintenance drop-down menu of the Call Database dialog. A filter dialog will appear containing the specific filters you can define for the call records you wish to delete. In these fields, enter the minimum and maximum ranges. To include a range, select your option, enter your range and turn on the Include check box for this filter. Repeat this step for all the filters you wish to include.

To save this filter file, click **Save Filter**. A dialog will appear prompting you to enter the destination drive, directory and filename where you wish to save this filter. Enter the drive and optional directory in its fields and click **OK** to save the file.

To reuse an existing filter file, click **Load Filter**. A dialog will appear prompting you to enter the filter name. Enter this information in the appropriate fields and click **OK** to load the file.

If you wish to schedule purging at a specific date and time, click **Schedule**. This will invoke the Scheduler application from MAT Common Services. Enter the date and time that you wish to purge the data.

Restore Call Database

During the Restore operation, Call Accounting appends the restored data to the end of the current Call Database file. Therefore, it is important to manage the Archive and Restore procedures so that the data in the Call Database is always in chronological order. This is especially important for report generation.

> ***Note:*** Do not restore the data from the archive diskettes to the working directory unless you are sure that the data from the working directory was previously purged. Otherwise, the data records will be added to the existing data and data records could become duplicated, thus reducing their validity.

To restore data, click **Restore** from the Maintenance drop-down menu of the Call Database dialog. Another dialog will appear prompting you to specify the drive, directory and filename of the data to be restored. Verify that this information is correct and click **OK** to restore the data.

Summary of tasks

The following is a summary of the major tasks described in this chapter as they are run by time period.

Daily tasks

1. Collect CDR data from your buffer box (it is recommended that your use a buffer box to store CDR data). Collections can be scheduled to occur automatically every day or they can be manually invoked each day. If you are not using a buffer box, a dedicated PC Com Port will continuously collect the CDR data as it is output from the Meridian 1.
2. View the log daily to ensure that your scheduled collection was successful. A list of the number of records collected by date can be found in the Database drop-down menu, under Utilities-List Call Database Dates.

Ongoing tasks (recommended weekly)

1 Synchronize Billing Database with Station Administration. If the Billing Database is not in synch with the Station Database (one or more changes have been made in Station), a dialog will prompt to ask you if you wish to synchronize the database when you access the Billing Database. If you click **Yes**, the Call Accounting Billing Database will automatically update to accommodate any changes you made in Station Administration.

   If you are not using the Station Administration application, you will need to perform your Call Accounting Billing Database updates manually.

2 Update Customer Directory. The Customer Directory assigns customer names to digits dialed. The reports can then include not just the dialed number but also the customer name. If you use the Customer Directory, it should be updated periodically.

3 Perform database backups. As with any database, you should perform a regular backup of your data to disk or hard drive.

Monthly tasks

1 Select your reporting filters to ensure that you are reporting on the correct subset of the collected data. Typically this will include setting the date for your reporting period.

2 Run your monthly reports.

3 Purge or archive your data. The Purge Call Database function will delete the data from your hard drive completely. The Archive Call Database function will store the call records to a disk or hard drive.

Help

As with the other MAT applications, Call Accounting contains an extensive Help facility which provides you with details on all of its functions and commands. At any time during your Call Accounting session, you can click **Help** and access information on a specific topic.

To obtain help for a topic, click **Help** from the currently selected dialog or window. This will access the Windows Help function and display context sensitive help information on the current topic.

Once you have accessed Help, you can then use it to scroll through the other Call Accounting help topics, search for a specific topic and print the help information.

To view a list of Help topics for Call Accounting, click **Contents** from the Help drop-down menu. Choose from one of the items in this list to load the Help file and display its information.

User's Reference

This chapter contains a general overview of the main Call Accounting functions as they are accessed from its main window. It briefly describes their main function and purpose. For complete details on each of these functions and their operation, you should refer to your on-line help.

File menu

This menu contains functions used to select an output device, set up a printer and exit from Call Accounting.

To access these functions, click **File** from the main window and select from the following menu items:

— Select Output Device

— Print Setup

— Close

Report menu

The Call Accounting reports provide information on the details of the call records which were collected from the Meridian 1. They also include information on your system databases and configurations. Each report appears in the Reports drop-down menu under its specific cascading menu.

To set up and run your reports, first select your output device and then select your reporting filters (or parameters). Each report begins with a banner page indicating the reporting filters for that report. Keep this information attached to the report for reference purposes.

The following is an example report which is generated from Call Accounting.

Table 1
Extension Detail Report

Acme Limited
Dallas, TX

Extension Detail Report

Extension: 216 - Smith, J. Page: 1
Department: MARKETING Date: 05/18/95
Division: SALES

Digits Dialed	Location		Date	Time	Duration	Cost	Route Used	Comments
9 1 214 555-5692	DALLAS	TX	05/17	11:16	45:00	23.29	DDD	TTL INC.
9 1 713 555-5777	HOUSTON	TX	05/17	11:31	12:00	4.42	DDD	
9 1 214 665-5430	HOUSTON	TX	05/17	11:37	7:00	2.58	DDD	
9 1 214 555-2837	HOUSTON	TX	05/17	11:37	16:00	9.02	DDD	
9 1 713 555-9275	DALLAS	TX	05/17	11:40	1:00	0.39	DDD	
9 1 214 555-5111	DALLAS	TX	05/17	11:42	2:00	0.74	DDD	
9 1 212 555-6419	NEW YORK	NY	05/17	11:43	1:00	0.39	DDD	
9 1 212 555-0211	NEW YORK	NY	05/17	11:43	33:00	18.60	DDD	
9 1 212 555-9275	NEW YORK	NY	05/17	11:44	1:00	0.39	DDD	
9 1 713 555-5347	HOUSTON	TX	05/17	11:46	1:00	0.39	DDD	
9 1 719 555-1000	PUEBLO	CO	05/17	11:47	15:00	8.45	DDD	

Report Totals:	# Calls		Minutes		Min/Call		Cost		Cost/Call	
	In	Out	In	Out	In	Out	In	Out	In	Out
DDD	0	11	0:00	134:00	0:00	12:11	0.00	68.64	0.00	6.24
Total:	0	11	0:00	134:00	0:00	12:11	0.00	68.64	0.00	6.24

Reviewed By: _____ Approved By: _____

The following paragraphs describe the common options which are presented before running a report.

Sort Order: This option allows you to select the order in which the directories are first sorted. By sorting this file in the appropriate order, the system organizes the report data in a way that best suits your needs.

Initialize Summary File: This option allows you to reset or clear the Summary file. This is necessary when the system generates a new set of results. Turn the **Initialize summary file** check box on if changes were made to the report filters since the Summary file was first created.

Produce Summary Data: This option causes the system to save the extension detail totals in the Summary file. The system then uses this file in the production of other reports. If you run the report again using different filters, you should regenerate this file to ensure that the extension totals are consistent with the newly selected data. However, you may decide not to initialize the Summary file if the new totals are to be added to the existing summary data.

Schedule: If you wish to schedule each of these reports to run at a specific date and time, click **Schedule** from their respective report setup dialogs. This will invoke the MAT Common Services Scheduler application in which you can select the date and time for later reporting. The Scheduler will then generate the selected report at the predefined date and time.

When you schedule a report to run using the MAT Scheduler, the output device of the scheduled report is determined by the Select Output Device option which was selected at the time when the report is scheduled.

Select Report Filters

Call Accounting allows you to generate reports based on data which meets a variety of report criteria. If you do not set report filters, the reports will include all the CDR data in the Call Database (e.g., every department instead of a particular one).

Cost allocation reports

The cost allocation reports provide costing details and summaries for the calls collected from the Meridian 1. These include accumulated summary reports based on department, division or corporate totals. To access these reports, click **Cost Allocation** from the Reports drop-down menu and then select the appropriate report from its cascading menu.

The following is a list of these reports:

— Exception/Chronological Report

— Extension Detail Report

— Department Summary Report

— Division Summary Report

— Corporate Summary Report

— Account Code Report

— Account Code Summary Report

— Account Code Summary by Extension Report

— Undisbursed Verification Report

— Undisbursed Summary Report

— Authorization Code Report

Trunk analysis reports

The trunk analysis reports list information for your telephone system's trunks. To access this list of reports, click **Trunk Analysis** from the Reports drop-down menu. Select the appropriate report from the Trunk Analysis cascading menu.

The following is a list of these reports:

— Trunk Utilization Report

— Trunk Detail Report

— Trunk Graph

— Tandem Tie Report

Directory/Configuration reports

The directory/configuration reports list information on your Call Accounting directories and Telephone Configuration Database. This includes a diagnostic for your Configuration File. To access these reports, click **Directory/Configuration** from the Reports drop-down menu and select the desired report from its cascading menu.

The following is a list of these reports:

— Billing Database Report

— Customer Directory Report

— Configuration Diagnostic Report

Frequency reports

The frequency reports provide details and summaries on calls based on calling line ID, ring time, call duration, hold time (if supported) or unanswered calls. To access these reports, click **Frequency** from the Reports drop-down menu and select the appropriate report from its cascading menu.

The following is a list of these reports:

— Customer Summary Report

— Frequently Called Numbers Report

— Digits Detail Report

— Calling Line Frequency Report

— Calling Line Summary Report

— Ring Time Summary Report

— Call Duration Summary Report

— Hold Time Detail Report

— Hold Time Summary Report

— Unanswered Call Detail Report

— Unanswered Call Summary Report

— Location Summary Report

— Area Code Summary Report

Export report

This report generates a text format report onto disk so that other programs (e.g., database management systems) can be used to create reports.

Graphs

When you select the Graphs function, the system will display a graph of its data. You can then edit the attributes of the graph and then save it as a bitmap file. You can also print a graph directly from the screen to the desired output. In addition, when you print a graph from the screen, you can reset the scaling and print layout of the graph.

To access this function, click **Graphs** from the Reports drop-down menu. This function allows you to select the display parameters of a graph. This dialog contains standard editing features such as: Open, Save and Save As. In addition, you can specify parameters for this graph by clicking **Filters**.

Graphics Services module

The Graphics Services module provides graph generating functions for supported MAT applications. Use this module to edit the attributes of a graph which is generated from another MAT application and then print it or save it as a bitmap file.

Database menu

Call Accounting uses a number of databases and directories which provide costing and maintenance support for its call records. It relies on the proper maintenance of its databases to operate efficiently. Improper data management can often lead to the following:

— Lost data in the event of a disk crash when no backups have been performed

— Missing historical data because data was not archived

— Long processing times due to outdated data

— Hard disk drives filled to capacity at which point you must remove and purge data before proceeding with normal operations

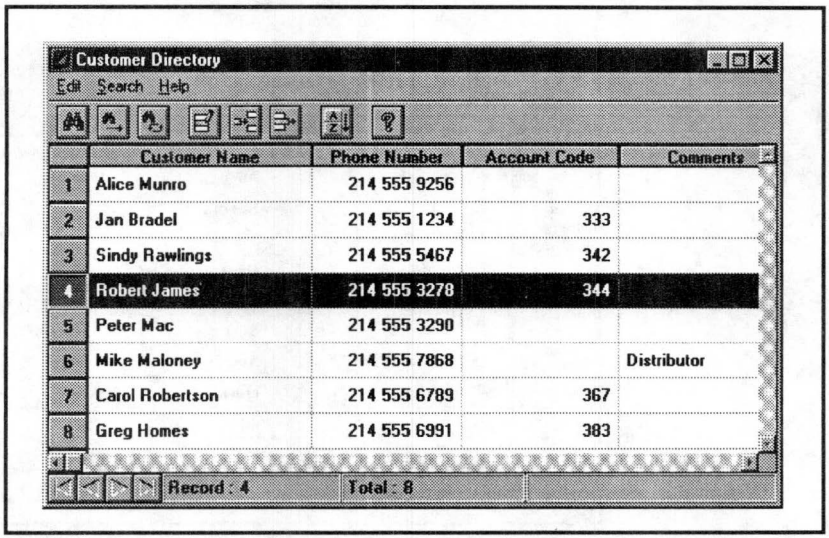
The following is a summary of the databases and functions which you can select from the Database drop-down menu.

Customer Directory

The Customer Directory is used to identify commonly called telephone numbers on the reports that are generated. It can also maintain a listing of your frequently called customers or clients. When the system matches an account code when you generate account code reports, it prints the name corresponding to that telephone number in the Customer Name field on the report.

The following is an example Customer Directory.

Figure 9
Customer Directory

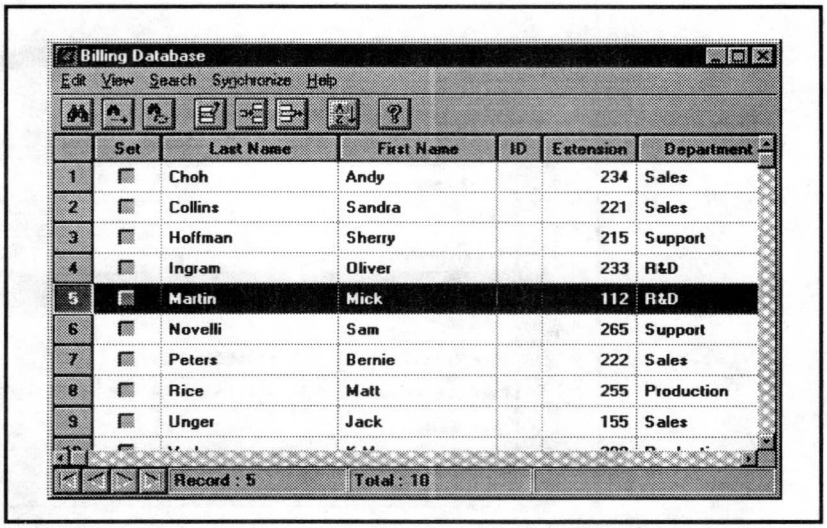


Billing Database

The Billing Database contains information which is generated from the Set Database and Custom Database of MAT Station Administration and provides information to the system for organizational purposes. Call Accounting uses the data entered in this database to accumulate and assign costs by extension, department, division and for the organization as a whole.

When you access the Billing Database, Call Accounting will index the database to build the department and division files. It will not index these files after this initial access unless the department and division files change.

Figure 10
Billing Database



Backup All Databases

If you need to make a backup copy of some or all of the database files, use the Backup All Databases function. The backup command will save the data files specified for the current system.

> *Note:* This will only make a backup copy of the Call Accounting database files. If you wish to backup other MAT system files, then use the application to which the database files belong or use the MAT Site Configuration application.

Restore All Databases

The Restore function allows you to restore any backup data by copying the Call Accounting database files you had previously backed up to the current databases.

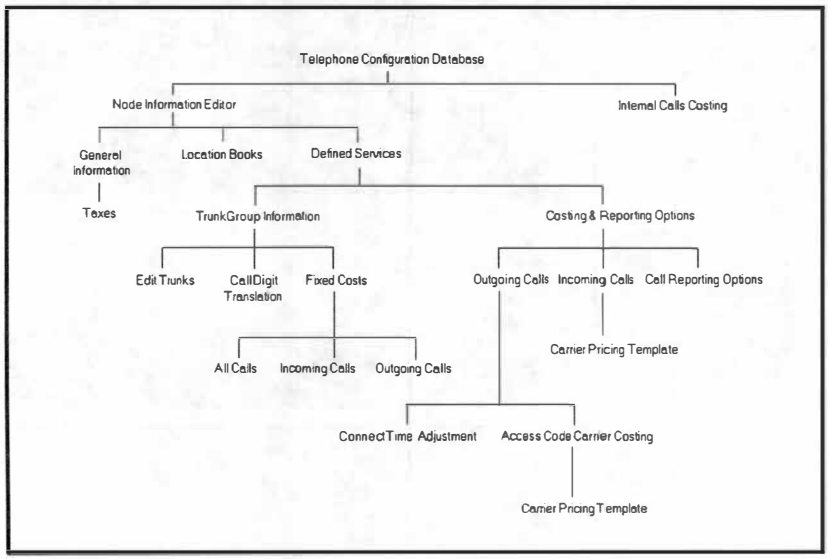
Telephone Configuration Database

The Telephone Configuration Database is the key to pricing calls and tracing them to their destinations. It defines the type of costing used through each trunk (e.g., DDD, DID, Tie Line) and includes any additional costs defined for your system and location. Each defined service uses predefined location books and rate tables based on the offerings of your telecommunications carrier. Call Accounting can then use this telephone configuration information to properly cost the call records collected from the Meridian 1 and generate reports.

It is critical that you keep the Telephone Configuration Database up-to-date as changes occur in your telephone system. Pay particular attention to the number of trunk lines used in your system and the free local calling areas. If these free local calling exchanges are not updated, then local calls may be priced as long distance calls.

The following is a schematic of the Telephone Configuration Database menus as they are accessed from the main window.

Figure 11
Schematic of Telephone Configuration Database

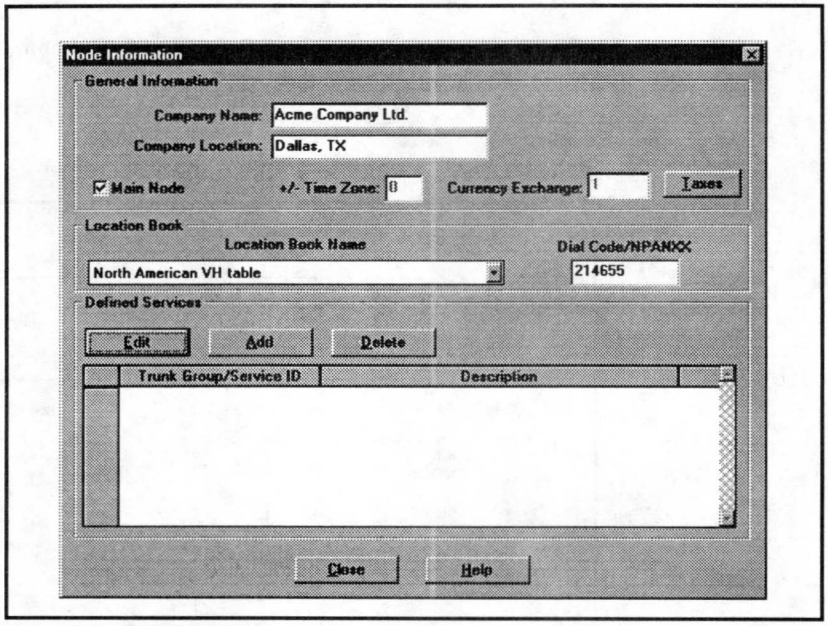


To access the Telephone Configuration Database, click **Telephone Configuration** from the Database drop-down menu. The following sections will describe a each feature of the Telephone Configuration as it appears in the menu.

Node Information Editor

You must define the costing for each node on your network. Each line in this grid represents an individual node. If you have only one system, then you only need to define one node. Otherwise, you must define each node's configuration (e.g., home, office, plants, etc.). For each node that is added to this list, you can enter its general description, location book, name, dial code and trunks.

Figure 12
Node Information



Internal Calls Costing

The Internal Calls Costing function allows you to apply costs to calls made within a system. These internal calls are made in the Meridian 1 from station to station. If you wish to calculate a cost for your company's internal calls and, if the main node produces records for such calls, then use this function to enter these costs.

System Call Digit Translation

The System Call Digit Translation function allows you to translate the digits dialed on call records for all trunk groups. This allows Call Accounting to process and print a different pattern from the one that is actually dialed. For example, the digit pattern '917135551234' could be re-interpreted as '812145551234'.

> ***Note:*** Call Digit Translation does not affect CLID/ANI digit patterns on incoming calls.

The System Call Digit Translation function translates the digits dialed in all of the call records in this system prior to the trunk group Call Digit Translation function.

> ***Note:*** The digit pattern translated by the System Call Digit Translation function may be translated again using the trunk based Call Digit Translation function. You should therefore be careful when using this function.

Utilities

The Call Accounting database utilities provide added commands which will assist you in managing your Call Database and help in system diagnostics.

To access these functions, click **Utilities** from the Database drop-down menu and click the desired function name in its cascading menu.

Call Database

The Call Database editor allows you to display and edit the Call Database records. In some cases, it may be necessary to edit or delete some call records of this database due to corrupted dates or IDs. This allows you to remove bad or unwanted sections of the database or replace invalid dates with valid dates.

Display Index File

The Index file (INDEX1.DAT) contains the indexing information used to sort the Call Database (MDR1.DAT) from the raw data file collected from the Meridian 1. Use the Display Index File function to scan through the records in the current system's Index file. This is a diagnostic tool which your support personnel use to determine the source of a reporting or costing problem.

ReIndex Call Database

In some cases, the Call Database may not be correctly sorted with the Index file. This can be caused by edits to the Call Database or by some system failure which may cause it to lose records. This can cause problems such as unsuccessful or inaccurate reporting. The ReIndex Call Database function corrects the Index file to match the Call Database.

List Call Database Dates

This function lists the dates of the call records for the current system's Call Database. Use this function to search for any invalid dates in the Call Database before generating your reports. If you find any incorrect dates, use this editor to search for and remove these call records from the Call Database.

Account Code Editor

Use this function to edit the account codes for call records in the Call Database after they have been collected from the Meridian 1. Once a call is stored in the Call Database, you can use this editor to add an account code to the call or modify an existing one. You can locate a call by selecting a telephone extension and reviewing each call for that extension.

Text File Editor

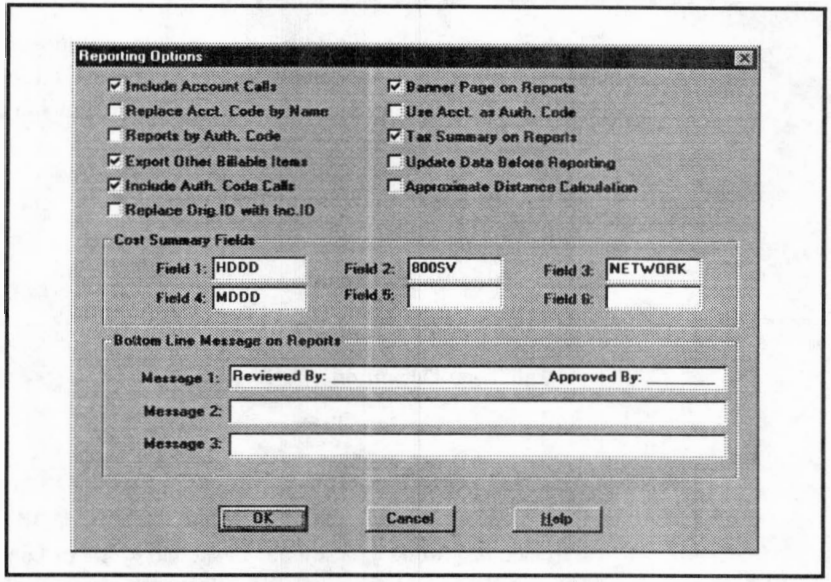
Call Accounting provides you with a method of modifying your existing text files (e.g., AUTOEXEC.BAT file). When you click **Text File Editor** from the Database drop-down menu, Call Accounting invokes the Windows Notepad utility. Use this editor to open any text files, edit them and save them again.

Reporting Options

The Reporting Options function allows you to set the features over the entire system which determine what will appear on selected reports. To access this function, click **Reporting Options** from the Database drop-down menu.

Note: To set the reporting options for any specific trunk, refer to the section Costing and Reporting Options. To set the reporting options on a digit pattern basis, refer to the section Call Reporting Options.

Figure 13
Reporting Options



Other Billable Items

The Other Billable Items function is used to assign any additional calls which are not being recorded by the Meridian 1 to a station. Use this function to enter costing information for calling criteria such as calling card calls or cellular calls. To assign these costs to the appropriate extension, you must either transfer the data from a file or you must copy the information from the printed credit card or telephone bill.

If the items you wish to enter are stored in a file in a format supported by Call Accounting, then you can transfer this data to the Other Billable Items database file ADDMDR1.DAT. If the items you wish to enter in this database cannot be transferred directly to the file, then you must type in the information from the source bill. Use the Other Billable Items editor dialog to enter this information.

System Options

This function contains specific system options that you enable for optimum system performance. Return to this function to change these options throughout your Call Accounting session.

Location Books & Rate Tables

The Location Books and Rate Tables provide the global pricing information and rate tables for your Telephone Configuration Database. Before you define your Telephone Configuration Database, you must ensure that the rate tables and templates have been defined.

Use the following functions to define the location books, carrier pricing templates and rate tables:

— Location Book Registry

— Carrier Pricing Templates

— Call Type Definition

— Edit Variable Rate Table

Location Book Registry

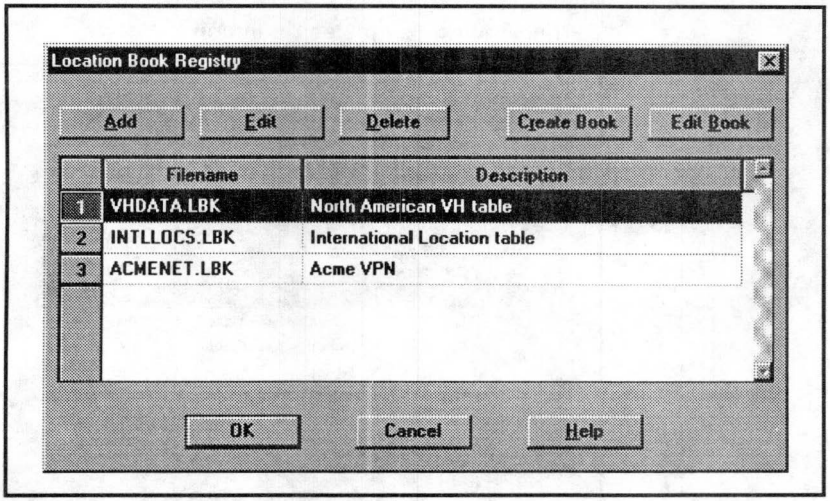
Location books contain the terminating location identified by the dial codes or area codes. Some location books such as V&H or Dial Code V&H consist of the vertical and horizontal coordinates which are used to calculate distances between different destinations. When calls are costed based on distance, the system uses the coordinates in these location books to calculate the distance between the points.

Call Accounting includes a set of predefined location book files which can be used in calculating distances between the different call destinations. It will read the digits dialed in the call record and will locate them in the location books. If the call was made over a trunk that is costed using measured distance rates, then it can be costed based on the distance between the node and the destination.

Each location book file can be assigned to a record in this database. These files can then be referenced from the functions which will calculate the distance-based costs of the calls.

The following is an example Location Book Registry dialog.

Figure 14
Location Book Registry

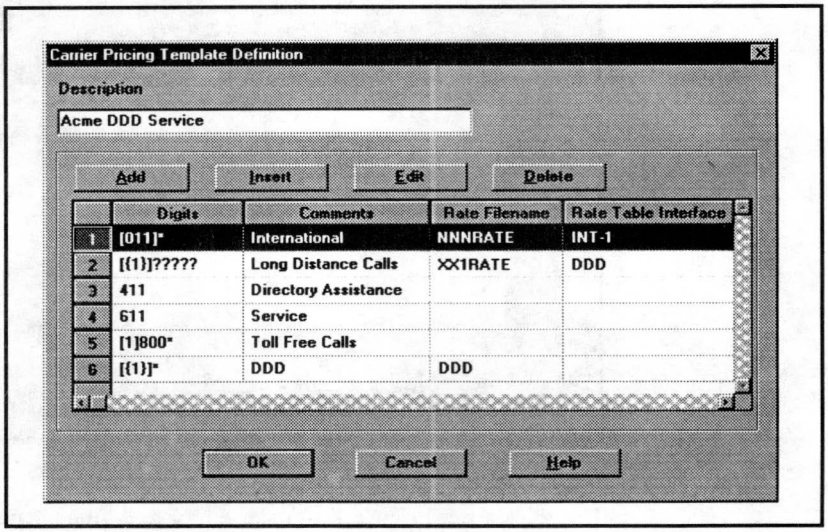


Carrier Pricing Templates

Use the Carrier Pricing Templates editor to define the criteria which determines the type and cost of a call. This information is based on the digits dialed, time of day and date.

The following is an example Carrier Pricing Templates dialog.

Figure 15
Carrier Pricing Templates Definition



Call Type Definition

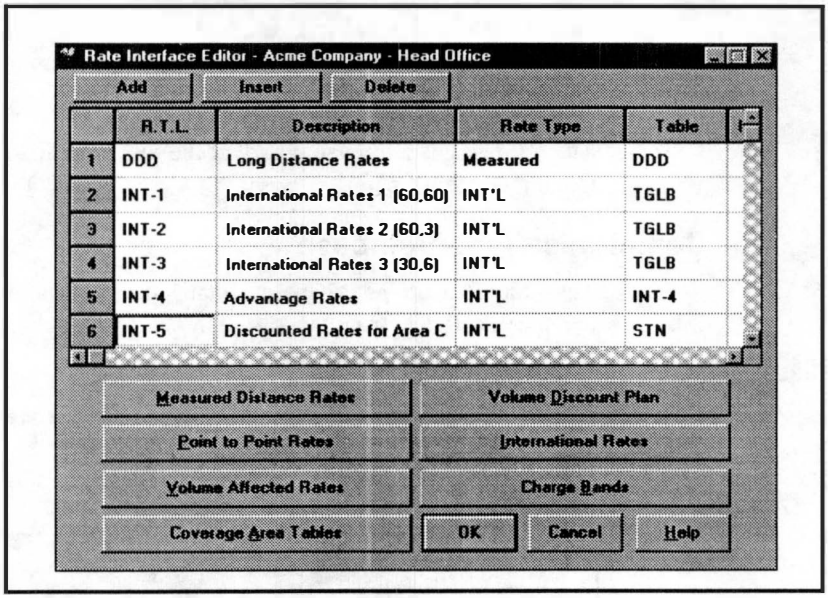
The Call Type Definition function allows you to specify the different types of calls used when you are defining the trunk usage of calls. This will distinguish the types of calls to allow for different costing to be applied to each call matching the call criteria.

Edit Variable Rate Table

Call Accounting includes common rate tables offered by the different carriers. The rate tables contain the required rates and coverage areas which define the locations (area codes, exchanges, etc.) from where calls are made. This way, the system will know which call will be costed with which rate.

The following is an example Rate Interface Editor dialog.

Figure 16
Rate Interface Editor



Use the following order of operations when setting up and implementing your rate tables.

1 Create rate tables using the Measured Distance Rates, Point to Point Rates, Volume Affected Rates, International Rates or Charge Band editors.

2 Define any coverage areas using the Coverage Area Tables editor (optional).

3 Define any volume discount plans using the Volume Discount Plan editor (optional).

4 Enter the rate table codes and any supporting information such as descriptions and pricing periods in this grid.

Communications menu

The Communications function performs the first step in processing CDR data. It collects the data from the Meridian 1 through an optional buffer unit and stores it for processing. It is used to set up communications between the PC and your Meridian 1 and perform data collection.

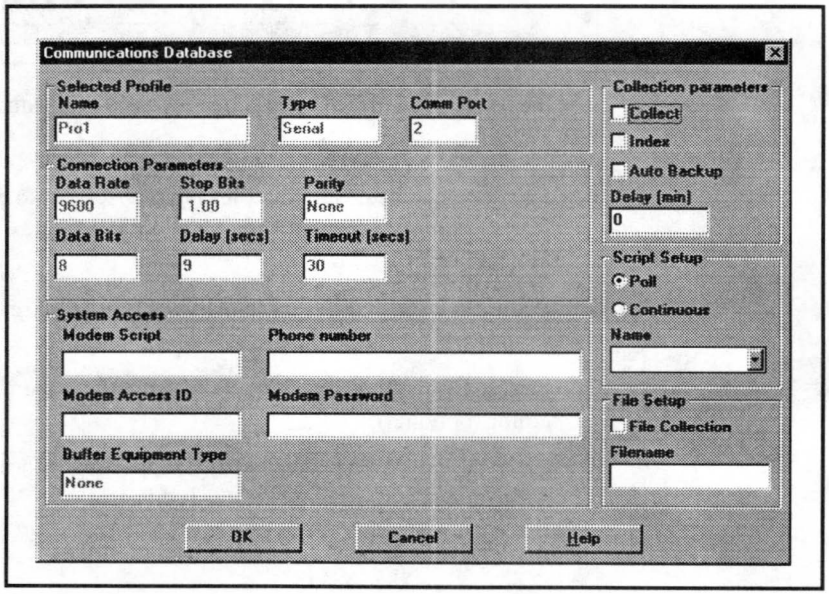
The following is a brief summary of the functions and commands in the Communications menu.

Communications Database

The Communications Database contains the information necessary to poll and index call data from the Meridian 1 or optional buffer unit to your PC's disk drive for data processing.

The following is an example Communications Database dialog.

Figure 17
Communications Database



Data Collection

Data Collection is the process of transferring the call detail data from the Meridian 1 or optional buffer unit to the raw Call Detail file DETAIL1.DAT on your system disk. Call Accounting will then index this raw data file and save it to the Call Database MDR1.DAT when a data collection option is initiated.

Collecting and indexing

Data collection is a two step process. During the first step, the system collects the data from the Meridian 1 through the optional buffer unit and stores it in the raw Call Detail file. The second step involves appending this file into the Call Database.

Schedule Data Collection

You can set up Call Accounting to collect and index the call detail records from the Meridian 1 by setting up the MAT Common Services Scheduler application. By providing basic information in the initial setup, you can signal Call Accounting to collect and/or index these call records at a scheduled date and time.

Sample Setup

To use Call Accounting for effective call data processing and reporting, you should follow a series of steps to initially set up its databases. Once this setup has been completed, you can use Call Accounting to collect call records, calculate costs and generate reports.

The following sample setup has been provided to assist you to initially set up your own Call Accounting databases and start a data collection. It contains the basic steps required to connect to the Meridian 1, collect and cost call records, enter a telephone configuration and generate reports.

> *Note:* This sample setup assumes that you have already installed Call Accounting onto a PC as part of MAT. If you have not already done so, then install Call Accounting before proceeding.

Scenario

This sample setup is based on the following scenario:

— The company Acme Company Ltd. is located in Dallas, Texas. The telephone number for the head office is **(214) 655-1111**. It has a branch office in Houston with the telephone number **(713) 455-1111**. The main node in Dallas is also connected to a Virtual Private Network (VPN).

— The name of this site is **Acme Company** and the system is **Head Office**. These have already been created using the System Configuration function of MAT Common Services.

— There are 16 members (trunks) on the main location's Meridian 1. These are configured as follows:

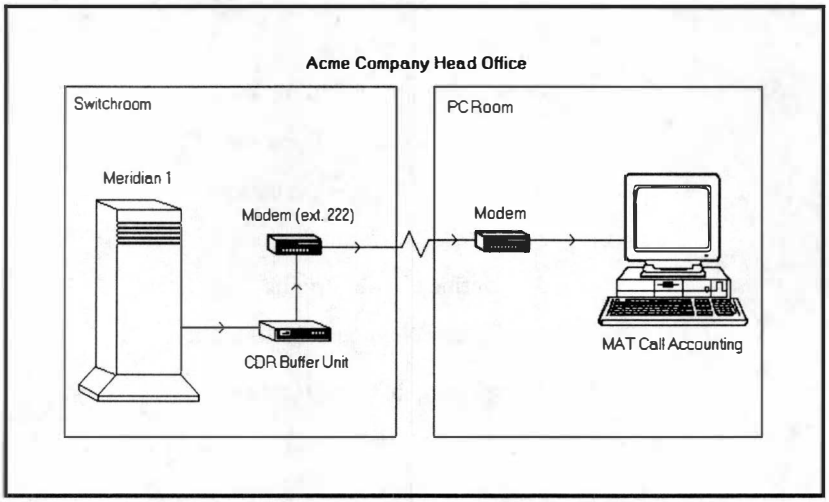
- **Route 0** has five (5) members (trunks) **1** to **5** for regular long distance service (DDD). These have access code **9**.
- **Route 1** has two (2) members **1** and **2** for incoming calls using the company's 800 service and do not require access codes. These are output as trunks 1001 and 1002.
- **Route 2** has two (2) members **1** and **2**. These trunks use a Tie Line service and have access code **8**. These are output as trunks 2001 and 2002.
- **Route 3** has seven (7) members **1** to **7**. These are connected to a Virtual Private Network (VPN) with location codes **220**, **221** and **222** and have access code **7**.

— The Meridian 1 is located in the switch room of the Acme Company head office. It requires a CDR buffer unit to be connected to it to collect CDR data. A modem is attached to this CDR buffer unit to allow for communications between it and a PC in another room. It has a dedicated extension number 222.

— The PC on which Call Accounting is installed is located in another room of the same building. A modem is attached to this PC's COM1 port and will be used to connect to the CDR buffer unit attached to the Meridian 1 and collect the CDR data from it.

— Acme wishes to report on toll calls only when generating reports. In addition, they wish to collect local calls which are to be summarized for each extension.

Figure 18
Sample Setup schematic



Before you define the telephone configuration for this scenario, you must have previously added a site and system to the MAT Navigator and assigned Call Accounting to the system. When Call Accounting is assigned to a system, a distinct set of files will be created to store its data in its directories and databases (e.g., Customer Directory, Billing Database, Call Database, Communications Database and Telephone Configuration Database). Refer to the *MAT Common Services User Guide* for complete details on how to enter system information and assign Call Accounting to a system.

The following set of steps outline the input required to complete this example. For more details on these functions and commands, access on-line Help from Call Accounting.

Summary of Steps

The following list summarizes the steps which will be discussed in this chapter.

1 Install CDR buffer unit

- **a** Steps for CDR buffer unit connection
- **b** Notes for direct connection

2 Open Site & System

3 Run Call Accounting

4 Test Data Collection

5 Enter Telephone Configuration

   a Create Location Book for VPN

   b Enter Call Type Definitions

   c Select Reporting Options

   d Define Carrier Pricing Templates

   e Enter Telephone Configuration

6 Test Telephone Configuration

   a Print report

   b Review Exception/Chronological Report

7 Follow-up procedures

   a Update databases

   b Set up operating schedule

Step 1: Install CDR buffer unit

In this sample setup, a CDR buffer unit is used to collect call records from the Meridian 1's CDR port. Therefore, the first step is to connect and install the CDR buffer unit onto the Meridian 1. It can then collect and store call records as they are output from the Meridian 1. You must then connect the PC to the buffer unit to collect the call records from the buffer unit to the Call Accounting database files. In this example, you would configure and connect modems to the buffer unit and the PC.

Steps for CDR buffer unit connection

Perform the following steps to install and connect the CDR buffer unit to the Meridian 1.

1. Locate the CDR port on the Meridian 1 and ensure that the Meridian 1 is configured to output CDR records.
2. Plug in and turn on the CDR buffer unit as instructed in the user documentation provided with it.
3. Test the CDR buffer unit to ensure that it collects according to its instructions. Check its commands and displays to ensure that it responds.
4. Connect the PC on which Call Accounting is installed to the CDR buffer unit. You can connect the PC to the CDR buffer unit either directly (using an RS232 cable) or through a modem connection (using a null modem cable). This example requires a modem connection between the PC and the CDR buffer unit. Therefore, plug one modem into the CDR buffer unit with the null modem cable and the other at the configured communications port (COM1) of the PC.

The operation of the CDR buffer units which are supported by Call Accounting may vary. You should therefore refer to the documentation provided with your CDR buffer unit for complete details on installing and connecting it.

Direct connection

If your configuration requires that you collect call records directly from the Meridian 1 to the PC without a CDR buffer unit, then connect the PC to the Meridian 1 either through line drivers or using a direct connection (e.g., using an RS232 cable).

Step 2: Open Site & System

Before you run Call Accounting, you must first run the MAT Navigator and open this site and system. You can then select Call Accounting from the Telemanagement menu in this system's window.

> ***Note:*** The system Head Office must already have been created using the System Configuration function. Refer to the *MAT Common Services User Guide* for more details on the System Configuration function.

Perform the following steps to open the site and system for this example.

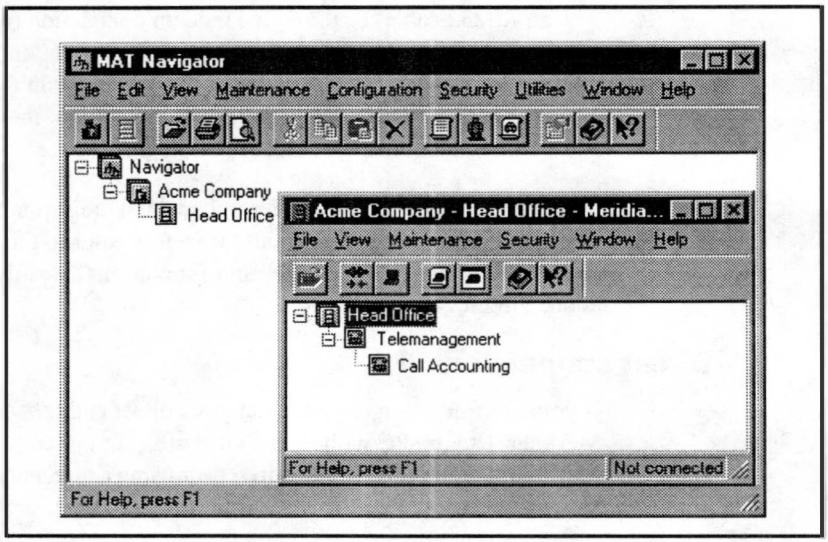
1 Run the MAT Navigator by clicking the **MAT Navigator** icon. At the Login dialog which appears, enter your user ID and password and click **OK** to continue.

2 To open the site for this example, click **Acme Company** in the MAT Navigator window.

3 To open the system for this example, click **Head Office** from this site.

This will access the system window for Head Office.

Figure 19
MAT Navigator Site/System



Step 3: Run Call Accounting

Once you have opened this system, you can then run Call Accounting to test the data collection, enter your configuration information and generate reports.

To run Call Accounting, open the system Head Office from the site Acme Company and click the **Telemanagement** menu item. This will display the MAT applications which have been assigned to the system Head Office under **Telemanagement** (e.g., Call Accounting, Call Tracking and Traffic Analysis). To run Call Accounting, double-click **Call Accounting** from this menu.

If Call Accounting has not been assigned to this system, it will not appear in the **Telemanagement** menu. To assign Call Accounting to this system, perform the following steps.

1 Click **Properties** from the File drop-down menu to access the System Properties dialog.

2 From the System Properties dialog, first enter a communications profile for Call Accounting by clicking the **Communications** tab. In the Communications Profile field, enter a profile for Call Accounting.

3 Click the **Applications** tab to assign Call Accounting to this system. From the Communications Profile drop-down list box, select the communications profile which you just entered in the Communications tab. Click **Call Accounting** in the Applications list box to highlight it and turn on the **Enable** check box. Notice that a check mark will appear next to Call Accounting in this list box.

4 Click **OK** to assign Call Accounting to this system. The Call Accounting icon will appear in the **Telemanagement** menu for the system **Head Office**.

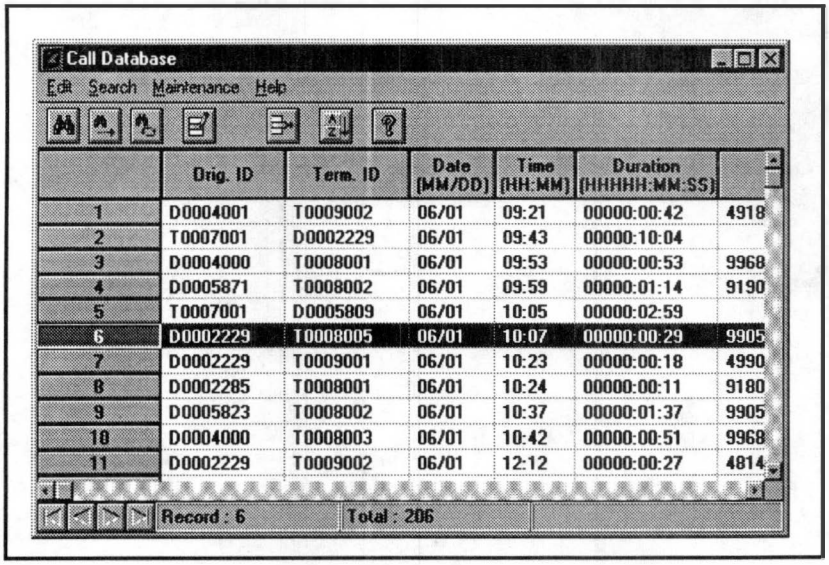
Step 4: Test data collection

Before you enter a configuration for this system, you should verify that the CDR buffer unit is collecting data from the Meridian 1 in the correct format. To do so, collect the call records from the CDR buffer unit and view them in the Call Database window.

To test this data collection, perform the following steps.

1. Wait for some calls to be recorded by the Meridian 1. Either wait for some calling activity on the switch or make a few telephone calls for this test. If the CDR buffer unit is properly connected to the Meridian 1, it will collect and store these call records as they are recorded by the Meridian 1.
2. Use the Communications Database to verify the communications parameters for the CDR buffer unit. These parameters would have previously been defined in the System Configuration application.
3. Turn on the **Collect** and **Index** check boxes to have Call Accounting collect the call records from the CDR buffer unit to the Detail file (DETAIL1.DAT) and index them to the Call Database (MDR1.DAT) during the data collection process.
4. Select the appropriate script for your system (refer to the *Common Services User Guide* for more details on which scripts are required for specific configurations).
5. Start the data collection by clicking **Data Collection** from the Communications drop-down menu.
6. Once this data collection is complete, view the Call Database (MDR1.DAT) to verify that these call records are in the correct format. To view the Call Database, click **Call Database** from the Utilities cascading menu of the Database drop-down menu. The Call Database dialog will appear listing the call records which were just collected.
7. Review the call records for any invalid fields. For example, check the trunks, access codes and digits dialed for invalid values. As well, check the call records' dates and times to ensure that they match the date and time on the Meridian 1.

Figure 20
Call Database



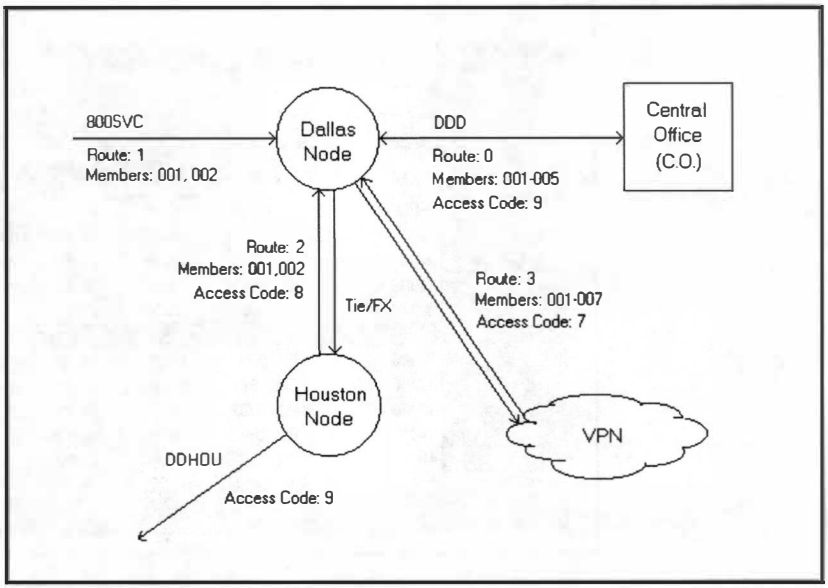
Once you have reviewed the call records and ensured that they are valid, then you can proceed to the next steps in this sample.

Step 5: Enter Telephone Configuration

The Telephone Configuration Database provides the main costing structure for the call records collected from the Meridian 1.

The following schematic outlines the trunk configuration for this setup. This was described in the Scenario section of this chapter.

Figure 21
Trunk configuration schematic



There are several steps involved in entering a telephone configuration for this scenario. These are itemized into the following main steps:

— Create Location Book for VPN

— Enter Call Type Definitions

— Select Reporting Options

— Define Carrier Pricing Templates

— Enter Telephone Configuration

Create Location Book for VPN

In this scenario, the main node is connected to a virtual private network (VPN) which is not associated with any predefined location books. You must therefore create a new location book to allow for costing in this VPN.

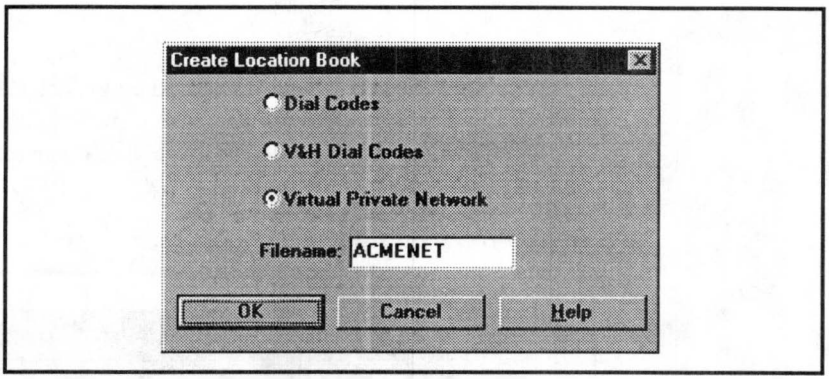
To create a VPN table and add it to the Location Book Registry, perform the following steps.

1 Click **Location Books and Rate Tables** from the Database drop-down menu and click **Location Book**. The Location Book Registry dialog will appear.

2 From the Location Book Registry dialog, add a new location book by clicking **Create Book**.

3 From the Create Location Book dialog which appears, click **Virtual Private Network**. In the Filename field, enter: **ACMENET** (the VPN filename without the LBK extension). Click **OK** to save this information.

Figure 22
Create Location Book



4 The Virtual Private Network grid window will then appear allowing you to add the range of digits for the location codes 220 to 222.

For the location code 220, click **Insert** from the Edit drop-down menu and enter the following information:

Low Range: **2200000**

High Range: **2209999**

Actual NPANXX: **214655**

Leave the Location field blank and click **OK** to add this VPN range of digits. This range indicates the location on the VPN where 220 is the location code and 0000 to 9999 represents the extension.

5 Repeat this step for the location code 221 by clicking **Insert** from the Edit drop-down menu and entering the following information:

Low Range: **2210000**

High Range: **2219999**

Actual NPANXX: **214455**

Leave the Location field blank and click **OK** to add this range of digits.

6 Repeat this step for the location code 222 by clicking **Insert** from the Edit drop-down menu and entering the following information:

Low Range: **2220000**

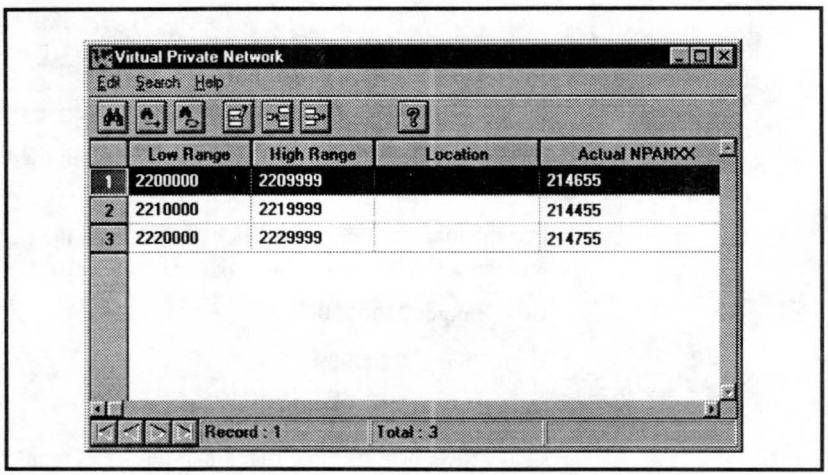
High Range: **2229999**

Actual NPANXX: **214755**

Click **OK** to add this VPN range of digits.

7 At a blank Virtual Private Network dialog, click **Cancel** to save this information and exit to the Virtual Private Network grid dialog. Notice that the grid will be updated with the digit range for this VPN.

Figure 23
Virtual Private Network grid



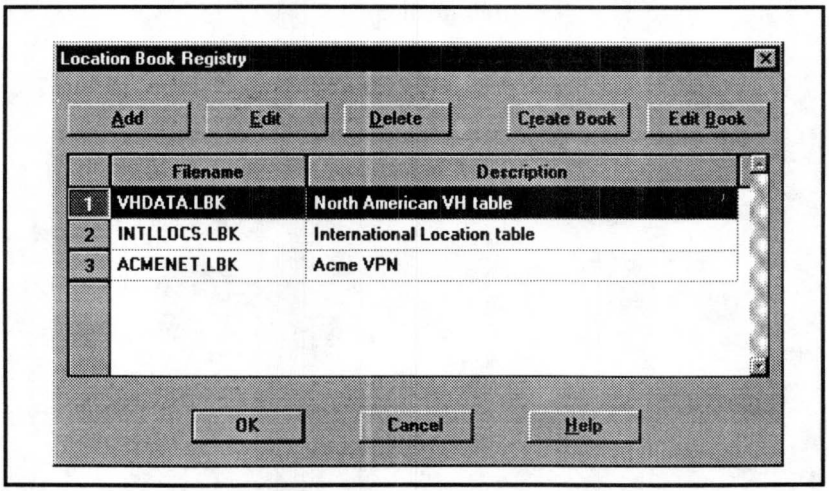
8 Click **Close** from the Edit drop-down menu to exit to the Location Book Registry dialog.

9 To add the location book ACMENET.LBK, click **Add** from the Location Book Registry dialog. The Location Book Selection dialog will appear.

10 From the Filename drop-down menu, select the filename which you entered in the Filename field in the previous step with the extension .LBK. For this example, enter: **ACMENET.LBK**.

11 In the Description field, enter: **Acme Virtual Network**. Click **OK** to select it. This location book will be added to the Location Book Registry grid. Click **OK** to save it and exit to the main window.

Figure 24
Location Book Registry



This completes the steps for creating this VPN location book. Select this location book when you are defining the carrier pricing template for the VPN (later section).

Enter Call Type Definitions

The Call Type Definitions function contains a list of types of calls which will be used by the Telephone Configuration Database.

To enter the required call type definitions, perform the following steps.

1 From the Database drop-down menu, click **Location Books and Rate Tables** and click **Call Type Definition** from its cascading menu.

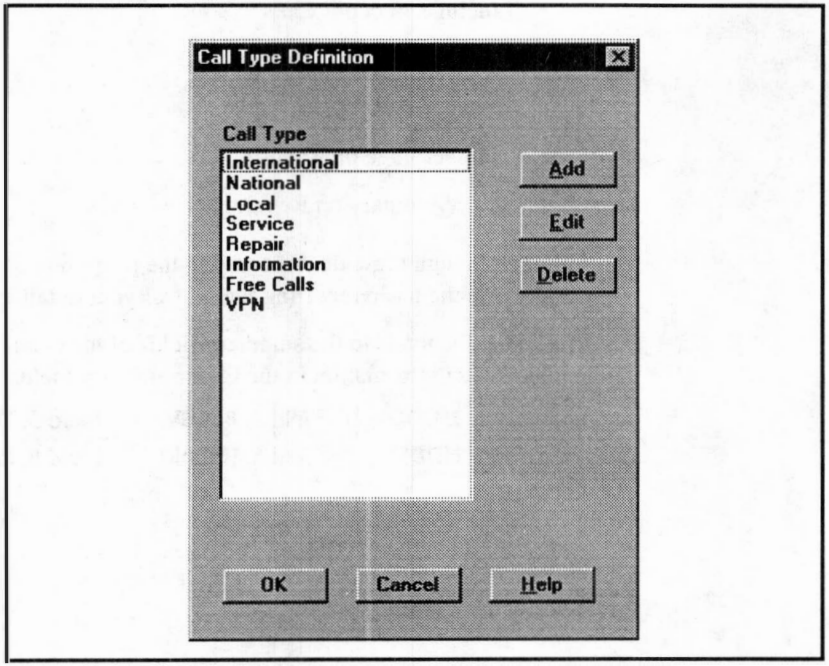
2 Add the following call types by clicking **Add** and entering the call type in the Call Type field:

- International
- National
- Local
- Service
- Repair
- Information
- Free Calls
- VPN

Click **OK** to add each new call type to the list.

3 Click **OK** from the Call Type Definition dialog to save these changes and exit to the main window.

Figure 25
Call Type Definition



Select Reporting Options

Before you enter your telephone configuration, you must first define the cost fields which will appear on your reports. These cost fields directly link the reported summary fields to the defined services in the Telephone Configuration Database.

To enter the reporting options for this scenario, perform the following steps.

1 Click **Reporting Options** from the Database drop-down menu.

2 Enable the following options by turning on their check boxes:

- Include Account Calls
- Export Other Billable Items
- Include Auth. Code Calls
- Banner Page on Reports
- Tax Summary on Reports

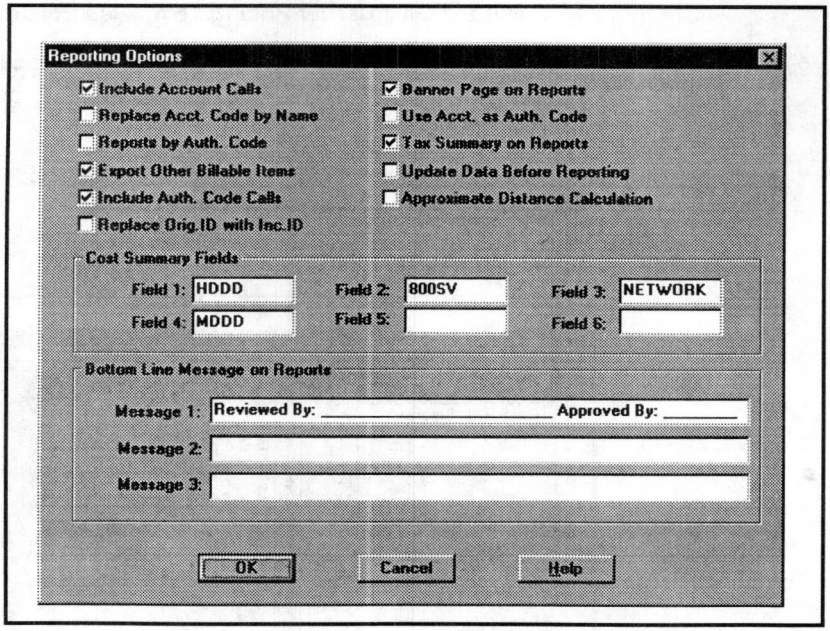
Even though these do not apply to the telephone configuration, they provide the basic reporting features of your detail and summary reports.

3 To list the totals in the summary fields of the detail reports, enter the following information in the Cost Summary Fields:

Field 1: **MDDD**	Field 2: **800SV**	Field 3: **Network**
Field 4: **HDDD**	Field 5: **[blank]**	Field 6: **[blank]**

4 Leave the Bottom Line Message on Reports fields set to the default values (e.g., **Reviewed By**: _____ **Approved By**: _____).

Figure 26
Reporting Options



5 Click **OK** to save this information.

Define Carrier Pricing Templates

The Carrier Pricing Template files contain the criteria which determine the type and cost of a call. This information is based on the digits dialed after call digit translation. The Telephone Configuration Database uses these templates to provide costing for your various services.

Each template can be defined from the Carrier Pricing Templates editor. For this example, you will need to define two templates: one using a regular DDD service with multiple pricing definitions, and another using the location book defined for virtual private networks.

Carrier Pricing Template—Acme DDD Service

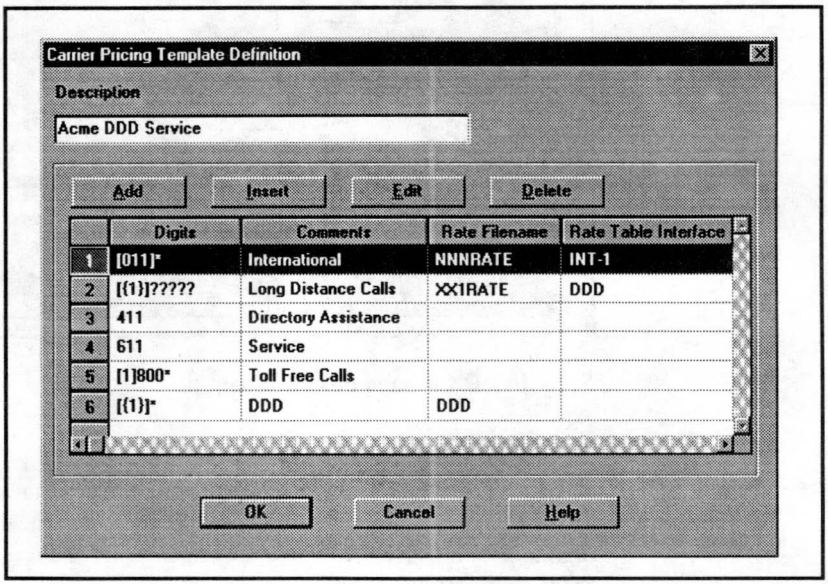
To enter the pricing definitions for the first Carrier Pricing Template, perform the following steps.

1 Click **Location Books and Rate Tables** from the Database drop-down menu and click **Carrier Pricing Templates** from its cascading menu.

2 Enter the pricing definitions by clicking **Add**. The Carrier Pricing Template Definition editor will appear with the default template for North America.

3 In the Description field, enter: **Acme DDD Service**.

Figure 27
Carrier Pricing Template



Enter pricing definitions

The remaining steps will describe how to enter the pricing definitions for the Acme DDD Service. These will allow the templates to interpret calls which contain selected digit patterns and then cost them accordingly.

For this example, you will create pricing definitions for the following types of calls:

International Calls	Toll Free Calls
Directory Assistance Calls	Long Distance Calls
Service Calls	Local Calls

Note: The order in which these pricing definitions are entered is importation. For example, you will enter the local calls pricing definition last. This way, its digit pattern ('*') will only match the calls which have been first processed using the other pricing definitions. If the local calls pricing definition had been entered first, then its digit pattern would match all calls (without being processed by the other pricing definitions). Therefore, all calls would be priced as local calls.

1 For International Calls, click **Add** from the template dialog and enter the following information:

Digit Patterns: **[011]***

Comments: **International**

Location Book: **International Location Codes** (International location table)

Rate Filename: **NNNRATE** (where NNN represents the carrier for these calls)

Rate Table Interface: **INT-1**

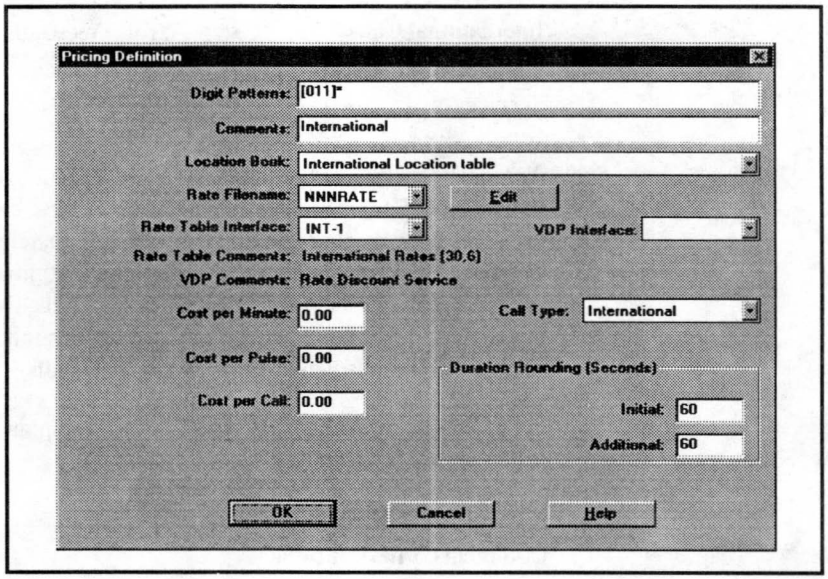
Call Type: **International**

Initial: **60**

Additional: **60**

Leave the remaining fields blank (they are not required for this example) and click **OK**.

Figure 28
Pricing Definition



2 For Directory Assistance Calls, click **Add** and enter the following information:

Digit Patterns: **411**

Comments: **Directory Assistance**

Location Book: **North American VH Table**

Cost per Call: **0.60**

Call Type: **Information**

Leave the remaining fields blank (they are not required for this example) and click **OK**.

3 For Service Calls, click **Add** and enter the following information:

Digit Patterns: **611**

Comments: **Service**

Location Book: **North American VH Table**

Call Type: **Service**

Initial: **60**

Additional: **60**

Leave the remaining fields blank (they are not required for this example) and click **OK**.

4 For Toll Free Calls, click **Add** and enter the following information:

Digit Patterns: **[1]@800@???-????*;[1]@888@???-????***

Comments: **Toll Free Calls**

Location Book: **North American VH Table**

Call Type: **Toll Free**

Initial: **60**

Additional: **60**

Leave the remaining fields blank (they are not required for this example) and click **OK**.

5 For Long Distance Calls, click **Add** and enter the following information:

Digit Patterns: **[1]@???@???-????***

Comments: **DDD**

Location Book: **North American VH Table**

Rate Filename: **NNNRATE**

Rate Table Interface: **DDD**

Call Type: **National**

Initial: **60**

Additional: **60**

Leave the remaining fields blank (they are not required for this example) and click **OK**.

6 For Local Calls, click **Add** and enter the following information:

Digit Patterns: *

Comments: **Local Calls**

Location Book: **North American VH Table**

Call Type: **Local**

Initial: **60**

Additional: **60**

Leave the remaining fields blank (they are not required for this example) and click **OK**.

7 Click **OK** from this dialog to save this information and exit to the Carrier Pricing Templates grid.

This completes the entries for this template's pricing definitions. The next step is to enter the definitions for the virtual private network.

Carrier Pricing Template—Acme VPN

To enter the pricing definitions for this Carrier Pricing Template, perform the following steps.

1 From the Carrier Pricing Templates grid, click **Add**. The Carrier Pricing Template Definition editor will appear.

2 In the Description field, enter: **Acme VPN**

Enter pricing definitions

The remaining steps will describe how to enter the pricing definitions for the Acme VPN template. These will allow the templates to interpret calls which contain selected digit patterns and then cost them accordingly.

For this example, you will create pricing definitions for the following types of calls:

— VPN Calls

— Other Calls

Note: The order in which these pricing definitions are entered is importation. For example, you will enter the Other Calls pricing definition last. This way, its digit pattern ('*') will only match the calls which have been first processed using the VPN pricing definition. If the Other Calls pricing definition had been entered first, then its digit pattern would match all calls (without being processed by the VPN pricing definition).

1 For VPN Calls, click **Add** from the template dialog and enter the following information. Assume a cost per minute of $0.08.

Digit Patterns:**???-????**

Comments: **VPN Calls**

Location Book: **Acme VPN**

Cost per Minute: **0.08**

Call Type: **VPN**

Leave the remaining fields blank (they are not required for this example) and click **OK**.

2 For Other Calls, click **Add** and enter the following information:

Digit Patterns: *

Comments: **Other Calls**

Location Book: **North American VH Table**

Call Type: **VPN**

Leave the remaining fields blank (they are not required for this example) and click **OK**.

3 From the Carrier Pricing Template dialog, click **OK** to save this template and return to the main window.

This completes the entries for these templates' pricing definitions. The next step is to enter the telephone configuration for this scenario.

Enter Telephone Configuration

The Telephone Configuration Database is the key to pricing calls and tracing them to their destinations. It defines the type of costing used by each trunk route/member (e.g., DDD, Tie Line) and includes any additional costs defined by your system. Each defined service uses predefined location books and rate tables based on the data supplied by your telecommunications carrier. You can review the current trunk route/member numbers by viewing the Index File.

To access the Telephone Configuration Database, click **Telephone Configuration** from the Database drop-down menu.

Define Internal Calls

If your system applies costs to internal calls (i.e., calls made between extensions within the Meridian 1), then you must enter these costs in the Internal Calls Costing section of the Telephone Configuration Database.

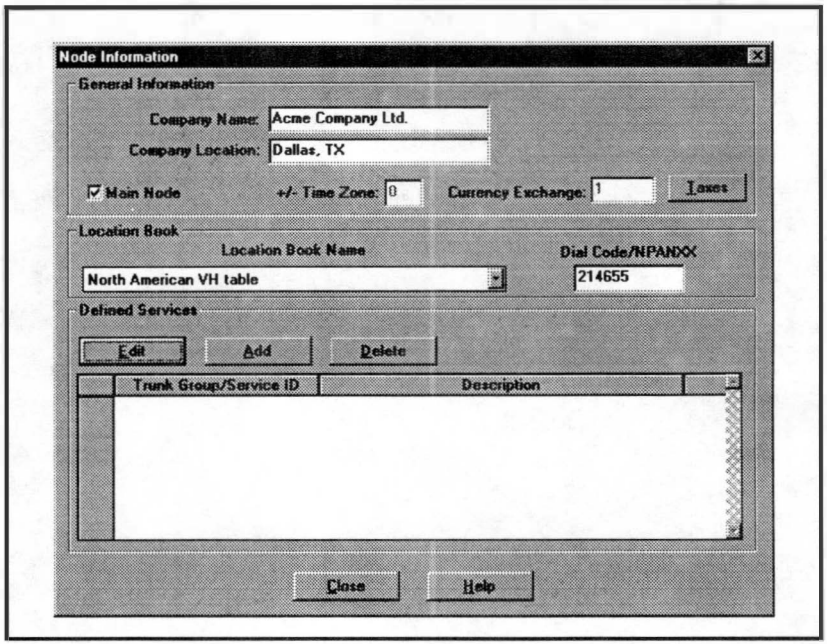
Add main node - Dallas

The first step in entering this telephone configuration is to define the main node. From the Telephone Configuration grid, click **Add** and enter the following general information.

1. In the Company Name field, enter: **Acme Company Ltd.**
2. In the Company Location field, enter: **Dallas, Texas**
3. Turn on the Main Node check box.
4. From the Location Book Name drop-down list box, select: **North American VH Table**
5. In the Dial Code/NPANXX field, enter: **214655**
6. Click **OK** to save this information and exit to the Telephone Configuration dialog.

Note: Frequently, the **OK** command button will appear at the bottom of a data entry grid when you initially add data. As well, you may encounter the **Close** command button in the same grid when editing data. You can use both the **OK** and **Close** command buttons to enter the added or updated data and exit from the data entry grid.

Figure 29
Main Node definition



Before you define the actual services for this main node (in the Defined Services grid of this dialog), you must first define any other Tie nodes which will connect to it (i.e., Houston node).

Add second node - Houston

This scenario requires that a second node in Houston be connected to the main node in Dallas. To add this second node to the telephone configuration, click **Add** from the Telephone Configuration grid as you did in the previous step.

From the Node Information dialog, enter the following information:

1 In the Company Name field, enter: **Acme Company Ltd.**

2 In the Company Location field, enter: **Houston, Texas**

3 Since you have already defined the previous record in this grid as the main node, leave the Main Node check box blank.

4 There is no time zone difference for this node. Therefore, in the +/- Time Zone field, enter: **0**

5 Similarly, there is no currency exchange for this node. Therefore, in the Currency Exchange field, enter: **1**

6 From the Location Book drop-down list box, select: **North American VH Table**

7 In the Dial Code/NPANXX field, enter: **713455**

8 Click **OK** to save this information and exit to the Telephone Configuration dialog.

This completes the entries for the general information of this node. Before you attempt to enter its service definition, you should return to the main node's record and enter its service definition. This will allow for the second node's Tie Line services to be assigned to the main node first.

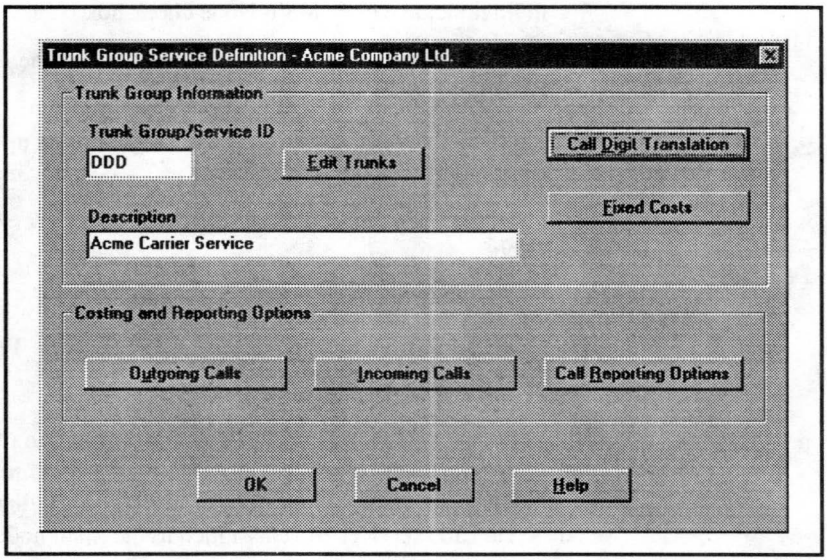
Add DDD service definition to main node

Add the first service definition to the main node by performing the following steps.

1 From the Telephone Configuration grid, edit the Main Node record by highlighting its record line in the grid and by clicking **Edit**.

2 In the Defined Services grid, click **Add** to add the main node's service definition information. The Trunk Group Service Definition dialog will appear.

Figure 30
Trunk Group Service Definition



3 In the Trunk Group/Service ID field, enter: **DDD**

4 Click **Edit Trunks** and then **Add** and enter the following information:

Low Range: **1**

High Range: **5**

Line/Description: **DDD** Trunks

This will add the route 0 members 001 to 005 to this node.

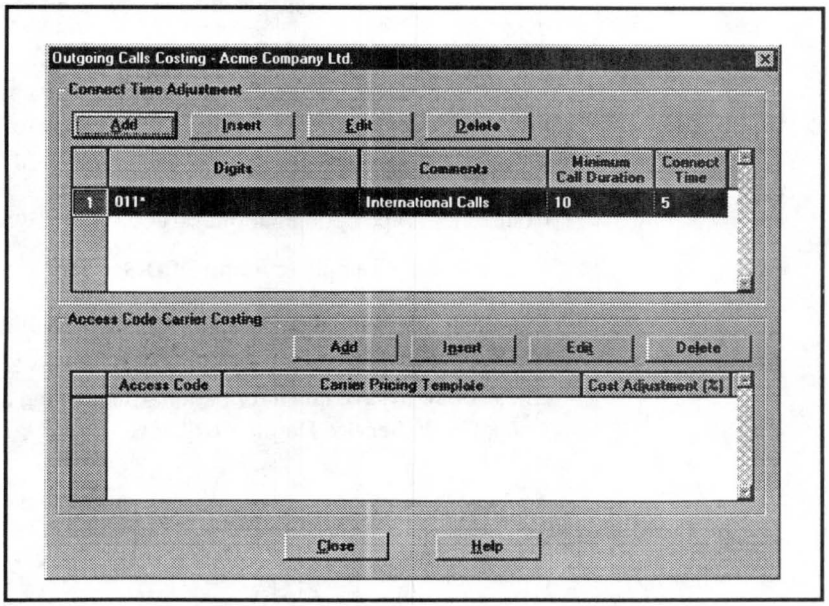
Trunk range data is entered as the route number immediately followed by the three digit member number. For the low range trunk entry, this would be '0' + '001' (or '0001'). Since leading zeros can be ignored, simply enter **1**.

Click **OK** to save this information and click **Cancel** to exit to the Trunk Numbers grid. Click **Close** to exit to the Trunk Group Service Definition dialog.

5 In the Description field, enter: **Acme Carrier Service**

6 Define the costing for outgoing calls by clicking **Outgoing Calls**.

Figure 31
Outgoing Calls Costing



7 Enter the connect time adjustment (the call's connection time to the trunk) by clicking **Add** from the Connect Time Adjustment grid.

8 In the Digits field, enter: **011***. The system will interpret all calls starting with the digits 011 (International Calls) and apply the appropriate connect time adjustments.

9 In the Comments field, enter: **International Calls**

10 In the Minimum Call Duration field, enter: **10**. This is the minimum amount of time (in seconds) which the call must register for it to be costed.

11 In the Connect Time field, enter: **5**. This is the time (in seconds) which the system allows for a connection. This will be subtracted from the call duration.

12 Click **OK** to add this record to the grid.

13 Repeat steps 7-12 for digit patterns '1*' (long distance calls) and '*' (other calls). Ensure that the pattern '*' is the last entry in the grid. Click **Cancel** to exit to the Outgoing Calls Costing dialog.

Note: If these trunks have answer supervision, then you do not need to enter a connect time adjustment value. You can therefore ignore steps 7-12.

14 Enter the access code carrier costing information by clicking **Add** from the Access Code Carrier Costing grid. Enter the following information:

Access Code: **9**

Connection Type option button: **Direct**

Carrier Pricing Template: **Acme DDD Service**

Leave the remaining fields blank (they are not required for this example) and click **OK**.

Click **Close** to save this information. Click **Close** again to exit to the Trunk Group Service Definition dialog.

15 Enter the call reporting options for this trunk service by clicking **Call Reporting Options**. To add a record, click **Add** and enter the following information:

Call Type: **All Calls**

Print Option: **Detail**

Cost Field: **DDD**

Route DES: **DDD**

Digits Mask: **0**

16 Click **OK** to save this information and click **Cancel** to exit to the Call Reporting Options grid. The grid will automatically be updated with this information. Click **Close** to exit to the Trunk Group Service Definition dialog.

This completes the first defined service (DDD) for the main node. Click **OK** from the Trunk Group Service Definition dialog to save this information and exit to the Node Information dialog.

Add 800 service definition to main node

The main node contains a trunk group with an 800 service. Add this service definition to the main node by performing the following steps.

1 Click **Add** to add another service definition record to the Service Definition grid.

2 In the Trunk Group/Service ID field, enter: **800SV**

3 Click **Edit Trunks** to define the range of trunks which use this node's services. Click **Add** and enter the following information:

Low Range: **1001**

High Range: **1002**

Line/Description: **800 Incoming Trunks**

This will add the route 1 members 001 to 002 to this node. Click **OK** to save this information and click **Cancel** to exit to the Trunk Numbers grid. Click **Close** to exit to the Trunk Group Service Definition dialog.

4 In the Description field, enter: **800 Incoming Service**

5 To define the incoming calls for this service, click **Incoming Calls** and enter the following information:

Connection Type option button: **Direct**

Carrier Pricing Template: **Acme DDD Service**

Click **Close** to save this information and exit to the Trunk Group Service Definition dialog again.

6 Enter the call reporting options for this service by clicking **Call Reporting Options**. From the Call Reporting Options grid which appears, click **Add**.

Enter the following information in this dialog:

Call Type: **All Calls**

Print Option: **Detail**

Cost Field: **800SV**

Route DES: **800**

Digits Mask: **0**

7 Click **OK** to save this information and click **Cancel** to exit to the Call Reporting Options grid. The grid will automatically be updated with this information. Click **Close**.

This completes the updates for this service. Click **OK** from the Trunk Group Service Definition dialog to save this information and exit to the Node Information dialog.

Add Tie Line service definition to main node

The next step is to add the definition for a Tie Line service to the main node. To cost a Tie Line service, perform the following steps.

1 Click **Add** from the Defined Services grid of the Node Information dialog. This will access the Trunk Group Service Definition dialog.

2 In the Trunk Group/Service ID field, enter: **Tie**

3 Click **Edit Trunks** to define the range of trunks which use this node's services. Click **Add** and enter the following information:

Low Range: **2001**

High Range: **2002**

Line/Description: **Tie Trunks**

This will add the route 2 members 001 to 002 to this node. Click **OK** to save this information and click **Cancel** to exit to the Trunk Numbers grid. Click **Close** to exit to the Trunk Group Service Definition dialog.

4 In the Description field, enter: **Tie Trunks to Houston**

5 Enter the fixed costs for this Tie Line service by clicking **Fixed Costs**. These costs will apply to all calls. In the All Calls Cost per Month field, enter: **200.00**

6 Click **Close** to save this information and exit to the Trunk Group Service Definition dialog.

7 Define the costing for any outgoing calls from this trunk group by clicking **Outgoing Calls**.

8 Click **Add** from the Access Code Carrier Costing grid and enter the following information:

Access Code: **8**

Connection Type option button: **Tie/FX Line**

Tie Node Location: **Acme Company Ltd. - Houston, Texas**

Click **OK** from this dialog to save this information and return to the Outgoing Calls Costing dialog.

9 Since this service does not require any connect time adjustments, leave its grid blank.

10 Click **Close** from this dialog to return to the Trunk Group Service Definition dialog again.

11 Define the costing for any incoming calls for this trunk group by clicking **Incoming Calls**.

12 Enter the following information:

Connection Type option button: **Tie/FX Line**

Tie Node Location: **Acme Company Ltd. - Houston, Texas**

Leave the remaining fields blank and click **Close**.

13 Enter the call reporting options for this trunk group by clicking **Call Reporting Options**. In the Call Reporting Options grid which appears, click **Add** and enter the following information:

Call Type: **All Calls**

Print Option: **Detail**

Cost Field: **NETWORK**

Route DES: **TIE**

Digits Mask: **0**

14 Once you have entered this information, click **OK** to save it and return to the Call Reporting Options grid. Click **Close**.

Add VPN service definition to main node

The next step is to add the definition for a VPN service to the main node. To enter this service, perform the following steps.

1 Click **Add** from the Defined Services grid of the Node Information dialog. This will access the Trunk Group Service Definition dialog.

2 In the Trunk Group/Service ID field, enter: **VPN**

3 Click **Edit Trunks** to define the range of trunks which use this node's services. Click **Add** and enter the following information:

Low Range: **3001**

High Range: **3007**

Line/Description: **VPN Trunks**

This will add the route 3 members 001 to 007 to this node. Click **OK** to save this information and click **Cancel** to exit to the Trunk Numbers grid. Click **Close** to exit to the Trunk Group Service Definition dialog.

4 In the Description field, enter: **VPN Trunks**

5 Define the costing for any outgoing calls from this trunk group by clicking **Outgoing Calls**.

6 Click **Add** from the Access Code Carrier Costing grid and enter the following information:

Access Code: **7**

Connection Type option button: **Direct**

Carrier Pricing Template: **Acme VPN**

Click **OK** from this dialog to save this information and return to the Outgoing Calls Costing dialog.

7 Since this service does not require any connect time adjustments, leave its grid blank.

8 Click **Close** from this dialog to return to the Trunk Group Service Definition dialog again.

9 Enter the call reporting options for this trunk group by clicking **Call Reporting Options**. In the Call Reporting Options grid which appears, click **Add** and enter the following information:

Call Type: **All Calls**

Print Option: **Detail**

Cost Field: **NETWORK**

Route DES: **VPN**

Digits Mask: **0**

10 Once you have entered this information, click **OK** to save it and return to the Call Reporting Options grid. Click **Close**.

This completes the entries for the service definitions of the main node. Click **OK** to save this trunk group information and exit to the Node Information dialog. Click **Close** to save the node information and exit to the Telephone Configuration dialog.

Add DDD service definition to Houston

The next step in setting up the telephone configuration is to define the services for the second site (Houston). To enter this information, double-click the record line for the Houston node in the Telephone Configuration grid (already created in a previous step).

Click **Add** in the Defined Services grid and perform the following steps.

1 In the Trunk Group/Service ID field, enter: **DDHOU**

2 In the Description field, enter: **DDD Service for Houston Node**

3 Do not enter any fixed costs for this service.

4 Enter the details for any outgoing calls from this node by clicking **Outgoing Calls**.

5 Define the connection time adjustments for this node by clicking **Add** from the Connect Time Adjustment grid and entering the following information:

Digits: **011***

Comments: **International Calls**

Minimum Call Duration: **10**

Connect Time: **5**

Click **OK** to save this information. Repeat this step for digit patterns '1*' (long distance calls) and '*' (other calls). Ensure that the pattern '*' is the last entry in the grid. Click **Cancel** to exit to the Outgoing Calls dialog.

6 Enter the access code carrier costing information by clicking **Add** in the Access Code Carrier Costing grid and entering the following information:

Access Code: **9**

Connection Type option button: **Direct**

Carrier Pricing Template: **Acme DDD Service**

Click **OK** to save this information.

7 Click **Close** to save this information and exit to the Trunk Group Service Definition dialog.

8 Define the call reporting options for this trunk group by clicking **Call Reporting Options** from the Trunk Group Service Definition dialog.

9 In the Call Reporting Options grid dialog which appears, click **Add**. Enter the following information:

Call Type: **All Calls**

Print Option: **Detail**

Cost Field: **HDDD**

Route DES: **HDD**

Digits Mask: **0**

10 Click **OK** to save this information and click **Cancel** to exit to the Call Reporting Options dialog. Click **Close** to save this information and exit to the Trunk Group Service Definition dialog. Click **OK** to exit to the Node Information dialog.

11 From the Node Information dialog, click **Close**.

12 From the Telephone Configuration dialog, click **OK** to save this node information and exit to the main window.

This completes the steps to entering a telephone configuration for this sample setup.

Step 6: Test Telephone Configuration

Once you have entered the telephone configuration, you should test it by generating a costing report such as the Exception/Chronological Report. This report contains calls placed in the order in which they are found in the Call Database. It displays important details about the collected and costed call records including: whether the digits were formatted properly; whether the location name and the route used are accurate; and if it was costed properly. This way, you can verify that the Telephone Configuration you just created will accurately process all future call records collected from the Meridian 1.

Print report

Perform the following steps to print the Exception/Chronological Report to the printer.

1 Select the printer as the output device by clicking **Select Output Device** from the File drop-down menu and clicking the **Printer** option. Click **OK** to select this output device. If you have not installed and configured a printer for Windows, then you should do so according to the documentation provided with your printer.

2 Print the Exception/Chronological Report to the printer by clicking **Cost Allocation** from the Reports drop-down menu and clicking **Exception/Chronological Report**. The Exception/Chronological Report dialog will appear containing the check box **Recalculate line usage for report**. Turn this check box on to recalculate the line usage and click **OK** to print the report to the output device.

Review Exception/Chronological Report

Once you have printed the report, review it to see if the collected call records were processed as expected. In particular, check the following fields.

Digits Dialed: Check the digits dialed field of each call record to verify that they represent the digits which were actually dialed. If they are incorrect, then you may need to adjust them using the Call Digit Translation function.

Location Name: Review the Location field of each call record to ensure that it is valid as it is entered in the Location Books and Rate Tables record for this configuration. If the location name is incorrect, then you may have selected an incorrect Carrier Pricing Template for this configuration.

Route Used: This field displays the type of route which this trunk group uses for costing (e.g., **DDD** as entered in the Call Reporting Options function). If the call record uses a certain trunk group and you entered a different trunk group in the Telephone Configuration, then this field may be incorrect.

Cost: This field displays any costs associated with this call such as long distance charges or any fixed costs assigned to each call. If, for example, this is an outgoing call made to a location which incurs long distance charges, then this field will display that charge. Check this cost against the telephone bill from your long distance service provider. This will ensure that the trunk groups selected for this configuration accurately represent your telephone system.

If report reflects errors

If this report does not accurately represent the call record and is inconsistent with your actual telephone usage, then your configuration may be incorrect. Access the Telephone Configuration Database again and enter the correct information. The following is an example error situation.

The Route Used fields in the Exception/Chronological Report contain the cost field name **TIEFX** only for selected call records. This is due to the fact that you entered trunks ranging from **2000** to **2001** for the Tie/FX service instead of trunks **2001** to **2002**. Only the Tie/FX calls which were made on trunk **2001** were recorded and displayed on this report; not for trunk **2002**.

To correct this error, return to the Telephone Configuration Database and from the Defined Services dialog, change the trunk range to **2001** to **2002**. This was entered in the step under *Enter Telephone Configuration*, entitled: *Add Tie Line service definition to main node.*

If report is correct

If this report indicates that these call records were processed and costed correctly, then this setup is complete.

Step 7: Follow-up procedures

Now that you have set up Call Accounting to collect and process the call records from the Meridian 1, you can update the other supporting databases to enhance the information provided in your reports. As well, you should set up a schedule of procedures to simplify the use of Call Accounting.

Update databases

The first databases which you should update are the Billing Database and Customer Directory. Call Accounting uses the data entered in the Billing Database to accumulate and assign costs by extension, department or division. The Customer Directory identifies commonly called telephone numbers on the billing reports.

Set up operating schedule

Once you have set up Call Accounting, you should define and follow a schedule which will allow you to easily manage the process of collecting call records, generating reports and updating the databases. This will facilitate the procedures involved in using Call Accounting.

Refer to *Chapter 2: Getting Started* in this user guide for a recommended schedule of activities. This will assist you in setting up your own operating procedures.

Appendix A: LAN Information

This appendix assumes that a Local Area Network has already been setup for your workstations and outlines the file access limitations and requirements for Call Accounting from a network server. It also lists the shared and local files which must be set up in order for Call Accounting to properly operate from a network server.

As part of the Meridian Administration Tools LAN installation, Call Accounting can be run by supported workstations (PCs) over a network. Running Call Accounting from a network provides a central source for all of the system databases.

File descriptions

Depending on their properties, the Call Accounting database files reside on different directories either on the server or on individual workstations (PCs). As part of the network installation, Call Accounting will automatically assign the shared and non-shared files to their proper drives and directories.

The following sections describe these shared and non-shared files. These files will be installed onto the network and workstation drives during the network installation and setup procedures.

Shared files

Shared files are files that may be used by all users on the network (according to their specific access rights). They are installed onto a network server drive in the selected directory. The following table contains a list of these shared files.

Table A-1
Shared files

File Label	Filename
Call Database	MDR1.DAT
Index File	INDEX1.DAT
Customer Directory	CUST1.DAT
Billing Database	BILLDB1.DAT
Other Billable Items File	ADDMDR1.DAT
Carrier Pricing Template Files	CARRIE1.MOD
Communications Database	MDRCOMM.DAT
Auto Backup File	BACKUP1.DAT
Reporting Options	SYS1.DAT

—end—

Non-shared files

Non-shared files are installed on the disk and subdirectory of each workstation which runs Call Accounting. These provide each workstation with specific data management and reporting functions.

The following list of non-shared files will be assigned to the working drive and directory of each workstation using the same directory configuration as the network directory. For example, if Call Accounting was installed on the network drive: **E:\NETDIR\MAT** and its working directory was **E:\NETDIR\MATWORK\SITEA**, then these non-shared files will be installed on **C:\NETDIR\MATWORK\SITEA**.

Table A-2
Non-shared files

File Label	Filename
Report File	REPLOG1.xxx
Select File	SELECT1.DAT
Summary File	CUMM1.DAT
—end—	

File access limitations

The Call Accounting database files are either available as shared files (installed on the network server) or as non-shared files (installed on each workstation). Non-shared files are used by each workstation and contain information required specifically for that workstation. Due to their properties, shared files can be accessed from the network with certain restrictions. The following sections describe the restrictions for the shared database files.

File locked access

File locked database files can be accessed by multiple users (workstations) simultaneously. Only the first user has full read/write access to the files (except for the Index File which is always a read-only file). All subsequent users have read-only access to the files. If a user attempts to access a database file while it is opened by another user, its dialog will appear in read-only mode allowing the user to view its records but not edit them.

The Telephone Configuration Database (CONFIG1.DAT) is a shared file with read/write access to the first user. All subsequent users will be locked out of the file until it is closed by the first user.

Table A-3
Shared files with locked access

File Label	Filename
Billing Database	BILLDB1.DAT
Customer Directory	CUST1.DAT
Call Database	MDR1.DAT
Index File	INDEX1.DAT
Other Billable Items File	ADDMDR1.DAT
Carrier Pricing Template Files	CARRIE1.DAT
Location Book Registry	LOCATION.REG

—end—

Simultaneous access

These database files can be accessed and edited by multiple users at the same time. Their edits, however, can only be saved by each workstation one at a time. These files have 'multi-user browse' and 'single user write' access. That is, multiple workstations can access a single file at the same time, but only the user who last saves the file and exits from the database editor will have their edits saved.

Therefore, if multiple users edit the same record simultaneously, only the last user to save that file will have their edits saved. The other users will have their data overwritten. To avoid confusion, you should have only designated users update these databases.

Table A-4
Shared files with simultaneous access

File Label	Filename
Reporting Options File	SYS1.DAT
System Options File	MDRSYS.DAT

—end—

Report generation restrictions

When generating reports, the system uses shared database files for calculating costs and summaries as well as assigning employee and customer information. The reporting function provides read-only access to these databases and allows multiple users to generate reports simultaneously. The system will not allow reports to be run by another workstation during the indexing stage of data collection. During this process, the Call Database will be opened by a workstation performing the data collection in exclusive mode and cannot be accessed by another workstation.

Appendix B: Additional Printer Commands

Call Accounting includes a separate initialization file entitled 'MDR.INI' which provides your PC with initialization parameters used by the system. The following is a list of command parameters in the MDR.INI file which you can update to change your printer setup.

Note: Improper editing of these command parameters may create errors in your configuration. Only users should attempt to modify this file.

Table B-1
Printer commands

Command	Description
Printer=	Sets out default printer
Font_80=	80 character font
Font_132=	132 character font
Draft=0	Disables draft mode (high speed) printing
Draft=1	Enables draft mode for device fonts (default)
Expand=0	Fonts wider than 132 columns clip at 132 columns
Expand=1	Allows fonts wider than 132 columns to expand reports

—continued—

Table B-1
Printer commands

Command	Description
Duplex=0	Disables printing on both sides for printers which can handle duplex printing
Duplex=1	Allows duplex printers to print duplex with vertical binding (default)
Duplex=2	Allows duplex printers to print duplex with horizontal binding
	—end—

Appendix C: Troubleshooting

The following is a list of some of the more common problems and solutions relating to Call Accounting. Use these solutions for configurations with or without modems.

Problem	Solution
'Disk directory full'.	Use the Purge Call Database function to eliminate old/unwanted records in your databases.
Some call records do not list a location and are not costed.	Define these trunks in the Defined Services editor of the Node Information dialog. Enable the Approximate Distance Calculation option in the Reporting Options dialog.
Modem dials unsuccessfully.	Check the modem's physical connection. Verify the telephone number in the Telephone Number field of the Communications Database.

Problem	Solution
When do I Initialize the Summary File?	Before running the first report of the month. If the report filters for the summary report are different from the detail report. If new call data has been added to the database after the Summary File has been indexed.
Modem dials but the modem on the receiving end is not responding.	Check the remote modem for power supply and cabling.Ensure that its 'Auto Answer' mode is activated.
Inactive extensions and trunks appear on Configuration Diagnostic Report.	They represent trunks and extensions that did not appear in the current Call Database.
Trunk Detail Report lists more trunk-to-trunk call records than Extension Detail Report.	The Trunk Detail Report will collect the information that has already been accumulated in the CUMM1.DAT file and split any trunk-to-trunk calls in two, indicating the incoming and outgoing trunk lines.

Appendix D: Error Messages

This appendix provides a listing of commonly occurring error messages, their definitions and possible solutions on how to correct them.

TME (too many extensions)

A 'TME' error signifies that 'Too Many Extensions' are found either in the Billing Database or in the Index File INDEX1.DAT. This error implies that you have exceeded the maximum number of extensions allowable in your software. When entering employee extensions, TME may appear if you exceed the software's set limit of entries.

When running a report, the system will add up all the extensions found in the Index file plus any inactive extensions found in the Billing Database. This total might exceed the total number allowed in the Billing Database. To correct this problem and to ensure that it will not happen again, remove all of your inactive extensions from the Billing Database.

To determine the number of extensions which the system is using, perform the following steps.

1 Click **Utilities** from the Database drop-down menu and click **Display Index File**.

2 When the dialog appears, search for a record that starts with *D* in the Key column (skip *D099999*). When the first *D* is found, enter the record number on the left hand side of the Key column.

3 Use the scroll bar or press the last arrow key to access the last record in the Index file.

4 Write down the last record number.

5 Calculate the difference between these two numbers and write down the answer.

6 Click **Close** to close this dialog.

7 Access the Reports drop-down menu and click **Directory/Configuration**. From this cascading menu, click **Configuration Diagnostic Report**.

8 When its dialog appears, disable the **Print Configuration File Contents** check box.

9 Print the report and count the extensions that are under the **Inactive Extension** heading.

10 Add the inactive extensions total with the total from the Index file.

Run time errors

Run Time Errors are generated by Call Accounting to indicate problems dealing with your configuration or with your hardware. They are in the format:

Run Time Error xx at XXXX:XXXX

The common errors of this type are listed below.

200: An attempt by the software to divide a number by zero occurred. This is usually caused by an error in your configuration, such as a zero entry that should have a non-zero value. Generate a Configuration Diagnostic Report to identify the problem.

202: This can occur when a particular sequence of events has lead the software to be corrupted in memory. It is usually corrected by rebooting your computer. Use the <Ctrl-Alt-Del> key combination to invoke a 'warm boot'.

IFF error INDEX1.DAT. Call Service.

This error occurs when the Index file and the Call Detail file are not synchronized. To alleviate this problem, reindex the Call Database.

G.P.F.

General Protection Faults are caused in Windows applications. Shut down Windows and start Call Accounting up again.

Output device not ready.

An attempt by the Call Accounting system to locate your specified output device fails. This can either indicate that the specified output device is not ready (e.g., the printer is off-line or turned off), or that it is not recognized by the PC as an attached peripheral. Verify that your output device is operational and is specified in Call Accounting.

Appendix E: Database, File & Report Specifications

This appendix contains a quick reference of the database, file, and report specifications for Call Accounting.

The following table is a list of the Call Accounting databases including their filenames and descriptions.

Table E-1
Database specifications

Database Name	Disk Filename	Description
Billing Database	BILLDB1.DAT	Contains all employees' details
Customer Directory	CUST1.DAT	Contains customers' details
Telephone Configuration Database	CONFIG.DAT	Contains information for your telephone system and costing
Other Billable Items	ADDMDR1.DAT	Contains manually entered billable items such as credit card calls
Call Detail File	DETAIL1.DAT	Contains the raw call detail records as output from the Meridian 1

—continued—

Table E-1
Database specifications

Database Name	Disk Filename	Description
Call Database	MDR1.DAT	Contains call details in normalized format (each call from the Call Detail file is changed to normalized format and is appended to the Call Database; after the last record is processed the Call Detail file is erased
Communications Database	MDRCOMM1.DAT	Contains the parameters which allow Call Accounting to collect call records from the Meridian 1 or buffer unit

—end—

The following is a list of reports and the file extensions associated with them.

Table E-2
Report layout

Extension	Report
EXD	Extension Detail Report
CHL	Exception/Chronological Report
DEP	Department Summary Report
TKD	Trunk Detail Report
DVN	Division Summary Report
TKU	Trunk Utilization Report
COR	Corporate Summary Report
ACS	Account Code Summary Report
UDV	Undisbursed Verification Report
UDS	Undisbursed Summary Report
CUS	Customer Directory Report
ATH	Authorization Code Report
TKG	Trunk Graph Report
ACT	Account Code Report
EMP	Billing Database Report
TDM	Tandem Tie Report
CON	Configuration Diagnostic Report
NNX	Location Summary Report
FRQ	Frequently Called Numbers Report
CSR	Customer Summary Report

—continued—

Table E-2
Report layout

Extension	Report
DIG	Digits Detail Report
CLD	Calling Line Frequency Report
SDF	Export Detail Report
CLX	Calling Line Summary Report
RGT	Ring Time Summary Report
DSR	Call Duration Summary Report
HTD	Hold Time Detail Report
HLD	Hold Time Summary Report
NAD	Unanswered Call Detail Report
NAS	Unanswered Call Summary Report
DCR	Area Code Summary Report
ASX	Account Code Summary by Extension Report
	—end—

Appendix F: CDR Compliance

This appendix contains a functional description of CDR records and fields available from the Meridian I switch with their intended use for Call Accounting purposes. This CDR output is based on X.11 release 21.

Basic calls

Outgoing calls (N record)

When a set or attendant console makes a direct outgoing call without call modifications, a Normal record (N record) is generated. N records can be recognized by having a DN or ATT indication in the originating ID field.

Call Accounting can assign a class mark 'outgoing' to these calls and report outgoing calls based on this class mark.

Incoming calls (N record)

When a set or attendant console receives an incoming call, a Normal record (N record) is generated. N records will be recognized by having a DN or ATT indication in the terminating ID field.

Call Accounting can assign a class mark 'incoming' to these calls and report incoming calls based on this class mark.

Internal calls (L record)

When a set makes a call to another set on the same switch, an Internal record (L record) is generated. Both the originating and the terminating fields will show a DN indication.

Call Accounting can assign a class mark 'internal' to these calls and report on internal calls based on this class mark.

Tandem calls (N record)

For tandem calls, a Normal record (N record) is generated between two trunks. By defining trunk routes as 'internal' or 'external', Call Accounting will classify tandem calls as incoming (originating trunk is external) or outgoing (terminating trunk is external).

When both the originating and terminating ID fields contain either an internal trunk or an external trunk, the call will be classified as 'tandem'. It will sort or print tandem calls based on this class mark.

When the CLID or BLID fields are printed, this information will be used to determine and report on the corresponding DN. Where neither the CLID or BLID is available or not known, Call Accounting will store these records in an exception file and print a warning.

Station Activity (D record)

When activated in Meridian 1, a D record can be generated for every call which a specific set is making. The printing of this D record is controlled on a per station basis. This facility is implemented to allow users to measure call activity on specific sets for Toll Fraud detection or analyze the use of specific sets.

Call Accounting can recognize this D record and assign an 'outgoing', 'incoming' or 'internal' class mark to these calls depending on the presence of a Trunk ID in the originating or terminating ID field. It can then report on all calls based on this class mark.

Metered Trunks (PPM/AOC)

Where trunks are defined in the Meridian 1 as PPM or AOC, the CDR record will contain cost information in the Charge Info and Call Charge fields.

Call Accounting can read the information in these fields and use it for costing. Two options will be available:

— It will use the Charge Info Field information (pulses or units) and convert it into costs via a configurable conversion factor.

— It will use the Call Charge Field information and convert it via a configurable conversion factor.

Terminating & Originating ID fields

The Terminating and Originating ID fields can contain the following information which will be detectable by Call Accounting and processed accordingly:

— **DNxxxx**—for systems with up to 4 digits DN length to identify a telephone set

— **xxxxxxx**—for systems with up to 4 digits DN length to identify a telephone set

— **Arrrmmm**—for outgoing trunks, answered calls only

— **Trrrmmm**—for incoming or outgoing trunks, all calls or non-answered only

— **TN**—for packet terminals

— **ATTN**—for attendants

Call Accounting can report on the following objects based on this information:

— Trunks answered

— Trunks unanswered

— DNs for up to 7 digits

— Attendants

— Packet Terminals

Options for basic calls

Auxiliary Identification

When calls are made from Multiple Appearances DN (MADN), the DN may not be a unique identifier. For that reason, Meridian 1 CDR provides the Auxiliary Identification which is basically the Terminal Number of the set involved in a call.

Call Accounting can configure an option so this field can be read and used to uniquely identify the set involved in a call.

Customer Number

The Meridian 1 can be programmed to accommodate several customers who physically share the switch but do not have common trunks and attendants. This is used in cases such as office blocks.

Call Accounting can configure an option so this field can be read and used to report on every customer separately or in combination.

Tenant Number

The Meridian 1 can be programmed to accommodate several groups who are physically sharing the switch including trunks and attendants.

Call Accounting can configure an option so this field can be read and used to report on every attendant separately or in combination.

Digits (including digits type identifier)

Call Accounting can use the first digits of the digits field to determine if special rates will apply. For example, where the same trunk route is used by two different carriers, two different rate tables will apply.

When an A or E is printed as a Digit Identifier in the CDR record, Call Accounting can use this information on request to check the digits in the Digits field with the trunk ID in the terminating ID field. In these cases, there may be a mismatch between dialed digits and outpulsed digits. The record will be processed as normal, but will be included in an exception field and a warning will be issued when the digits do not match the trunk ID.

For incoming R2MFC calls, a C will be printed as a Digit Identifier in the CDR record. Call Accounting can use this information on request as Calling Line ID.

Include/Exclude digits

The Meridian 1 can optionally include or exclude digits from the digits field. Call Accounting can do the same, both at the start and the end of the string. This will allow the exclusion of sensitive information (e.g., PIN entries) or the compliance with regulatory bodies (exclude last 4 or 7 digits, indicating terminating stations). As well, redundant information can now be taken away from the reports (i.e., access codes) or added to them.

Calling Line ID

Incoming calls from ISDN trunks can have the CLID information printed in the CDR record. Call Accounting has an option to print this CLID information for incoming calls.

For outgoing and tandem calls, the CLID field will be used to determine the corresponding DN and report on it. The call will be reported as an 'outgoing' call from this corresponding DN.

Time to Answer

For incoming calls, the Meridian 1 CDR can provide an option which measures the Time To Answer (TTA). The TTA field will print ringing time for a DN and both queuing time and ringing time for an attendant. This information is used to measure call responsiveness in detail.

Call Accounting can configure an option so this field can be read and used to report on both DN and attendant activity. Both detailed and average reports will be available.

Call Redirection

The TTA field also provides a redirection identifier indicating if ringing time can be fully charged back to the terminating set. When detailed DN and attendant activity reports are produced, this redirection identifier will be printed.

Transferred calls

Start (S), Transfer (X), & End (E) records

When a call is transferred, a Start and End record pair will be generated. When an outgoing call gets transferred more than once, one Start record, one or more Transfer records and one End record will be generated.

Call Accounting can read and correlate these records and assign duration and costs in every record to the correct DN. Two options will be available:

— It can assign the duration and costs of the whole call to the last DN. Only one DN for this call will be reported.

— It can assign duration and costs of every call segment to the corresponding DN. More DNs for this call will be reported.

CLID & BLID fields in S, X, & E records

When Start or Transfer records are generated for tandem calls, CLID and BLID fields will be used to determine and report on the corresponding DN.

Attendant ID in ID fields for S, X, & E records

Start records are also generated for attendants when they extend/transfer incoming or outgoing calls. An option will be available for attendant transferred calls to ignore attendant activity and charge call duration and costs for the attendant part of the call back to the connected DN.

Conference calls

Conference ID in terminating ID field

When a user adds a party in an existing call via the conference feature, a Start and End record is generated for every additional party. These records will be treated as a separate outgoing call to the new external trunk. The End record will include the conference port as the originating party. Call Accounting will correlate this End record to the Start record and charge costs and duration of the End record to the originating DN printed in the Start record.

Charge Conference (M records)

Charge Conference records (M records) can be generated optionally for conference calls. M records are generated for the conference owner and the external trunk are added to the conference. The M record for every trunk relates to the Start and End record for the same trunk. The account code entered will be used to report as an option for that outgoing call on the trunk.

Charge Account (C records)

Charge Account records (C records) can be generated optionally for conference calls. C records are generated for the conference owner and the external trunk are added to the conference. The C record for every trunk relates to the Start and End record for the same trunk. The account code entered will be used to report as an option for that outgoing call on the trunk.

Non-Answered calls

Incoming non-answered calls (B records)

Incoming calls which are not being answered and are disconnected by the (external) calling party can (optionally) generate an Incoming non-answered call record (B record) for abandoned calls.

Call Accounting can report on abandoned calls and use all sorting and reporting functions available for Basic calls of the abandoned calls. These calls will be classified as 'incoming non-answered'.

Outgoing non-answered calls (A/T indication)

Outgoing calls which are not being answered can (optionally) be identified by the Meridian 1 with a 'T' indicator in the trunk ID field rather than the 'A' indicator when the call is being answered.

Call Accounting can report on non-answered outgoing calls and use all sorting and reporting functions available for Basic calls for these non-answered calls. These calls will be classified as 'outgoing non-answered'.

The Answer Supervision option is not available for all trunks. This option will therefore be set on a trunk route basis in Call Accounting.

Authorization codes/Scheduled access restrictions (A record)

An Authorization codes/Scheduled access restrictions record (A record) can be generated when the user enters either an Authorization Code or a valid Schedule Access Restrictions (SAR) access code. The A record will show the DN of the user in the Originating ID field and the code entered on the digits field.

Call Accounting can read A records and use the code entered as a charge account code. This code will be included in the reports and will be associated with the corresponding call records for that call (Normal, Start, Transfer and End records).

Charge Account Code (C record)

A Charge Account Code record (C record) can be generated when the user enters a Charge Account Code. The C record will show the DN of the user in the Originating ID field and the code entered on the digits field.

Call Accounting can read A records and use the code entered as a charge account code. This code will be included in the reports and will be associated with the corresponding call records for that call (Normal, Start, Transfer and End records).

Calling Party Number (P record)

A Calling Party Number record (P record) can be generated when the user enters a special feature key followed by a number. The intent of this record is to bill the costs of that specific call not to the user but to a special number. This can be either another DN, an external number (e.g., a collect call) or a special code. The P record will show the DN of the user in the Originating ID field and the code entered on the digits field.

Call Accounting can read P records and use the code entered as a charge account code. This code will be included in the reports and will be associated with the corresponding call records for that call (Normal, Start, Transfer and End records).

ACD call records

Special CDR records can be generated for ACD calls. These records will be supported on an optional basis. The following is a summary of these records:

— **R record**—for ACD calls that are transferred

— **F record**—for ACD conference calls

— **Q record**—for ACD calls that are answered by an ACD agent

Data calls

Special CDR records can be generated for Data calls. These records will be supported on an optional basis. The following is a summary of these records.

— **G record**—for internal data calls

— **H record**—for external data calls

Centrex features

A Feature Invocation record (Y record) can be generated for Centrex calls. The Y record is generated when a Centrex feature is accessed via the Meridian 1. The dialed digits printed reflect the accessed feature. Cost should be allocated to the user via a fixed rate for every access. The Y record will be supported on an optional basis.

Appendix G: List of Terms

The following provides a listing of commonly used telecommunications and computer terms. Many of these terms are used throughout the text without definition and are therefore offered here.

A

Access Code

The number dialed to connect the user with an outgoing trunk group. For example, '9' for local calls.

Account Code

An optional series of digits dialed used for internal corporate purposes of identifying a customer or client. These codes are used for client billing or tracking purposes.

AIOD/SMDR

Automatic Identification of Outward Dialing, or Station Message Detail Recording. Suggests a method of capturing complete details of outgoing calls, which may be further processed.

Area Code

A three digit number used to identify toll centers which are not in the Numbering Plan Area of the calling party.

Attendant

Console operator for the Meridian 1, often referred to as the switchboard operator.

Authorization Code

A series of digits dialed which identify the caller and cause the Meridian 1 to grant access to services which are otherwise restricted.

B

Band

A geographical area to which a subscriber is entitled to call. Band 1 entitles the subscriber to call fewer area codes than Band 5. Also referred to as Zone.

Baud

A measure of data transmission speed. It is expressed in bits per second which roughly represents the character speed multiplied by 10. For example 300 Baud is roughly 30 characters per second.

C

CBX

See Private Branch Exchange.

CCS

See Centi-Call Seconds.

CDR

Call Detail Recording. See Station Message Detail Recording.

Central Office

Refers to the telephone company office to which incoming and outgoing lines are connected for the subscriber.

Centi-Call Seconds

A unit used for the measurement of telephone traffic analysis, equivalent to one hundred seconds of telephone usage.

D

Database

A file or group of files which are interrelated, or serve a common purpose.

DDD

See Direct Distance Dialing.

Direct Distance Dialing

The service which allows dialing to areas outside the local area without the assistance of the operator.

DN

Directory Number. A user's telephone extension number.

Duration

The length of time taken for a call. The Meridian 1 records the duration as an estimate, because no signal is available to determine when the called party answers. Therefore, many short calls may be recorded for which no conversation took place. The limit for call duration is often adjustable.

E

EAS NPA

See Extended Area Service.

Erlang

The telephone traffic's international unit of measurement. One erlang is a trunk occupied for an hour, this is equivalent to 36 CCS.

Exchange

An area in which there is a uniform set of charges for the telephone service. Often refers to a central office, and the first three digits dialed for a local call. Also referred to as NXX.

Extended Area Service

A local telephone calling area which is larger than normal.

F

Field

One data item which is part of a group of data items making up a data record.

File

A group of data records.

Flat Rate Service

A uniform fee paid for services regardless of usage.

Foreign Exchange

A telephone number from a remote exchange working in a local exchange. Mileage charges usually apply.

FX

See Foreign Exchange.

G

Grade of Service

The probability of getting a busy signal when trying to access a line.

I

Index

The process of merging the Call Detail File with the existing Call Database records.

L

LCR

See Least Cost Route.

Leased Lines

Refers to private lines between two switching centers.

Least Cost Route

Some Meridian 1's have the ability to determine the least expensive call route.

M

Measured Service

Measured service charges are dependent on the time of day, duration of the call, and the distance to the point dialed. Local calls in some cities are charged by measured unit, which is measured service.

Message Unit

A unit for charging local calls comprised of length of call, distance called and time of day.

N

Node

Used to indicate a Meridian 1 in a network. Can also mean any endpoint in a network.

NPA

See Area Code.

NXX

See Exchange.

O

Other Common Carrier

A private company which has filed tariffs with the FCC to provide long distance telephone service to subscribers.

P

PABX

See Private Branch Exchange.

PBX

See Private Branch Exchange and Node.

Peg Count

A counting device within the Meridian 1 which indicates the number of calls placed, received, or blocked.

Private Branch Exchange

A privately owned telephone system which supplies the interface between business user and the public network. Also referred to as PABX (Automatic) and CBX (computerized).

Pro-rated Costing

When the cost per minute for calls (using a specific trunk or trunk group) is calculated automatically by the system based on the total fixed cost of the trunks and divided by the actual usage of those trunks.

S

SMDR

See Station Message Detail Recording.

Station Message Detail Recording

The ability of a Meridian 1 to output information to supply reports which include time of call, calling extension, duration of call, number dialed, trunk group, and date. Additional information may also be output.

T

Tariff

A document filed with the FCC which details the services, equipment (and costs) offered by a communications carrier. A 'tariffed' item has a fixed cost.

TELCO

A telephone company.

Tie Line

A dedicated circuit linking two Meridian 1 systems.

Trunk

A circuit used to connect two telephones. Trunks can be incoming, outgoing, two way, or interoffice. Trunks are also identified by the type of service they provide (i.e., DDD, FX).

Trunk Group

A group of trunks categorized by the type of service they provide. For example, trunks with DDD access are contained in a single trunk group.

Z

Zone

See Band.

Meridian Administration Tools

Call Accounting

User Guide

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Meridian Administration Tools

Call Tracking

User Guide

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Introduction

This user guide provides basic information on setting up and running Call Tracking. It also includes an example to assist you in setting it up for a real time monitoring session. In order to ensure optimum operation of this application, read the material in this user guide before attempting to run Call Tracking.

Overview

Call Tracking is the MAT call monitor and alarm program. Its graphs indicate trends and provide displays of unusual calls enabling you to adjust your equipment and services to maximize your resources. Call Tracking monitors and displays information output from the Meridian 1, accumulates the data and displays the information in different formats in its graphical displays.

Call Tracking consists of several graphical displays which list your monitored call data. Each of these is a separate window or dialog which displays the call information in a unique format.

The main window is the background for these graphical display windows. The commands in its main window provide you with the overall functions of these graphical displays.

Call Tracking also provides alarm generating functions which can be set up to warn you of unusual calling patterns. This is useful in the quick detection of unauthorized telephone calls that occur with toll fraud. You can define multiple alarm templates to detect different calling patterns including: calls exceeding a certain duration; calls made at unusual times; and toll calls. Call Tracking can also be configured to output different types of alarms including: visible and audible alarms on your PC; remote paging; facsimile alarms; and network reported alarms.

About this user guide

This user guide is intended to provide you with an introduction to Call Tracking as well as an overview of its major functions and graphical displays. It includes an example to demonstrate how to initiate a real time connection and start a call monitoring session.

This user guide does not discuss each Call Tracking function and command in detail. It only discusses the major functions and how they are accessed. For detailed information on each Call Tracking function, use on-line Help either directly or via its index and word-search functions. While running Call Tracking, you can obtain context-sensitive help on any topic you require by simply clicking **Help** from a specific dialog or window.

Conventions used in this manual

This manual uses the following terms:

— *Computer system* refers to the hardware and software of an IBM-PC™ or 100% compatible PC.

— *Windows* refers to Microsoft Windows 95™.

— *Mouse* refers to any standard PC pointing device. Common mouse actions include *point*, *click* and *double-click*.

— Standard Windows terminology includes: *icon*, *window*, *dialog box* (or *dialog*) and *menu*.

— Angle brackets denote a single keyboard key. For example, <Esc> denotes the Escape key, labeled Esc on PC keyboards. Angle brackets with multiple keys denote keyboard keys to use simultaneously. For example, <Ctrl-Alt-Del> denotes the key sequence for rebooting a PC.

— **This font** is used to designate buttons, menu choices and information you are to enter.

Getting Started

This chapter provides an overview of how to run and set up Call Tracking for a real time and data file monitoring session.

Before using Call Tracking, you must install and configure it as part of MAT. Refer to Getting Started in the *MAT Common Services User guide* for complete details on installing this application.

System access

After you have assigned Call Tracking to a site and system, you can set it up to collect and monitor CDR data and configure its alarms. The following sections highlight the main functions required to use Call Tracking to collect and monitor CDR data in real time mode and from a data file.

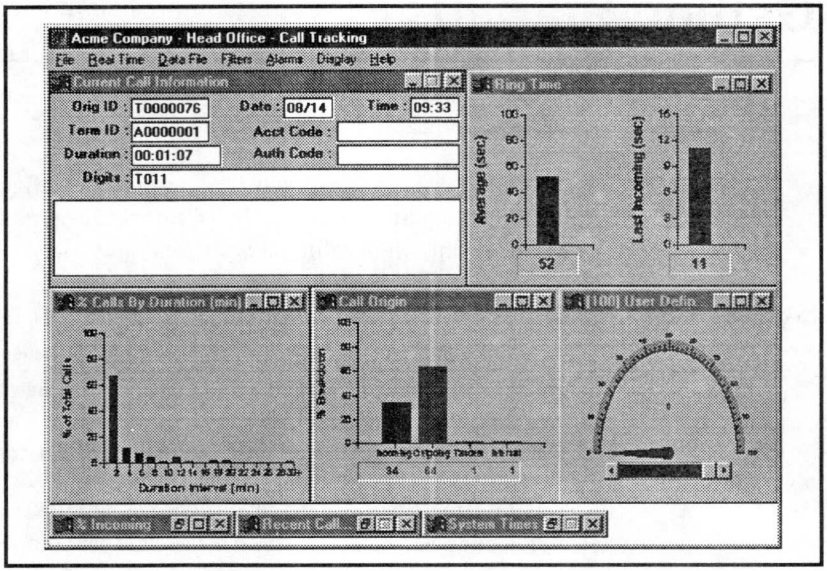
> *Note:* If you are using Call Tracking in real time mode (i.e., you are collecting and analyzing the calls as they are completed and recorded on the Meridian 1), then you must first select the communications script used for the connection to the Meridian 1. If you are monitoring calling activity from a data file, then you need to select the formatted data file for monitoring.

If Call Tracking has not been assigned to this system, it will not appear in the **Telemanagement** menu. To assign Call Tracking to this system, access the MAT System Properties function. In the Communications tab, assign a profile for Call Tracking by entering it in the Communications Profile field. In the Applications tab, select the communications profile you just entered in the Communications tab, click **Call Tracking** to highlight it and click the **Enable** check box. Click **OK** from the System Properties dialog to assign Call Tracking to this system.

Run Call Tracking

To access Call Tracking from the MAT Navigator, click the desired site and system and click **Call Tracking** from the Telemanagement menu. The main Call Tracking window will appear.

Figure 1
Call Tracking main window



Set Filters

During the Call Tracking session, you can use the Filters commands to set the filters for the call records as they are being collected. You can for example, set a filter to have Call Tracking only collect call records having a set minimum call duration. You can select up to 10 different filters and have Call Tracking include or exclude the call records matching these filters.

Set Alarms

The Alarms function is used to set an alarm monitor to warn of suspicious calls. These alarms can be sent to your PC as a visual or audible alarm, or to an external device such as a log file, printer, network workstation, pager, modem or fax machine.

Collect CDR data from Meridian 1 in real time mode

Once you have accessed Call Tracking, you can then use the Real Time or Data File commands to initiate a call monitoring session.

Before initiating the real time data collection and monitoring process, you should first access the Communications Database dialog and verify the communications settings for Call Tracking on this system. In this dialog, you can also select the script file which will be used for this session.

Verify communications parameters

To verify the communications parameters for this system, click **Edit Database** from the Real Time drop-down menu. The Communications Database dialog will appear displaying the communications and connection criteria for this system's Meridian 1. These are displayed for informational purposes.

Review the data in these fields to ensure that they correspond to your system's connection parameters. If any of these values are incorrect, then return to the System Configuration function in the MAT Navigator, access the Communications tab and edit them. When you access the Call Tracking Communications Database again, its values will be changed accordingly.

The next step is to select the script file which will be used for this communications session. To select this script file, click on the script file name from the **Script Setup Name** drop-down list box (e.g., **SL1.SCR**). Click **OK** to save this selection and exit to the main window.

Connect

To initiate a connection to the Meridian 1 and start collecting and monitoring the call records, click **Connect** from the Real Time drop-down menu. There will be a brief delay as the communications process is initiated. Call Tracking will then monitor calls as they are recorded by the Meridian 1.

If you wish to pause the monitoring process at any time, click **Pause** from the File drop-down menu. Click **Pause** again to resume the monitoring session. To stop the real time monitoring of the calls, click **Disconnect** from the Real Time drop-down menu. Click **Connect** again to resume the session.

Collect CDR data from data file

The second method of monitoring calls is to view the records from a detail file. To monitor call information from a call detail file rather than in real time mode, click **Start File** from the Data File drop-down menu. At the file prompt, enter the name of the call detail file which you wish to monitor and click **OK**.

For the Data File option, Call Tracking reads and displays normalized detail files (e.g., DETAIL1.DAT). A normalized detail file is an ASCII format text file containing the CDR data records output from the Meridian 1.

Once you select a valid detail filename, Call Tracking will start the monitoring process and display calling information from each call in this normalized detail file.

You can adjust the pace at which the calls are being displayed by clicking **Pacing Factor** from the Data File drop-down menu and clicking the pacing factor scroll bar.

To pause this display, click **Pause** from the File drop-down menu. To start the display again, click the **Pause** toggle again to deselect it. To stop reviewing records from the detail file, click **End File** from the Data File drop-down menu. To start the reviewing process again, click **Start File**. This will not resume the viewing from where you stopped; it will start it from the beginning of the file.

Help

As with the other MAT applications, Call Tracking contains an extensive Help facility which provides you with details on all of its functions and commands. At any time during your Call Tracking session, you can click **Help** and access information on a specific topic.

To obtain help for a topic, click **Help** from the currently selected dialog or window. This will access the Windows Help function and display context sensitive help information on the current topic. Once you have accessed Help, you can then use it to scroll through the other Call Tracking help topics, search for a topic and print the help information.

To view a list of Help topics for Call Tracking, click **Contents** from the Help drop-down menu. Choose from one of the items in this list to load the Help file and display its information.

User's Reference

This chapter describes the Call Tracking main menus, their functions and the graphical displays.

Call Tracking menus

The main Call Tracking window is the background for the graphical display windows. Use these commands to configure the appearance of your graphical displays, connect to the Meridian 1 and define your alarms.

File menu

The File menu contains commands used to affect the main action of the call records as they are collected. Use these functions to pause the data collection, print graphical displays of data, reset the call collection and display Employee Database information.

The following is a list of the functions and commands in this menu:

— Call Tracking ID Code

— Schedule

— Print

— Print Setup

— Reset

— Reset Longest Call

— Employee Database Options

— Detail File

— Pause

— Exit

Real Time menu

The Real Time menu contains functions and commands used to view communications parameters, select connection scripts and connect to the Meridian 1 to start and end a real time monitoring session.

The following is a list of the functions and commands in this menu:

— Edit Database

— Connect

— Disconnect

Data File menu

The Data File menu contains commands used to monitor a specific file which contains a group of processed call records already collected from the Meridian 1. This provides a different method of monitoring your calls.

For the Data File option, Call Tracking reads and displays normalized detail files (e.g., DETAIL1.DAT). A normalized detail file is an ASCII format text file containing the CDR data records output from the Meridian 1. The CDR records must be converted to this normalized format during a data collection procedure (either as it is collected from a supported buffer unit or using a script function).

You can, for example, collect information from the Meridian 1 over a period of time and save it to a file (e.g., DETAIL1.DAT). When you click **Data File** and click **Start File** from its drop-down menu, you can simulate the real time call collection and monitoring process. This is useful if a Meridian 1 is at a distant site (long distance charges would apply) and you do not wish to poll data from this Meridian 1 over several hours in real time mode.

The following is a list of the commands in this menu:

— Start File

— End File

— Pacing Factor

Filters menu

Use the Filters commands to set the filters for the call records as they are being monitored. You can for example, set a filter to have Call Tracking only collect call records having a set minimum call duration. You can select up to 10 different filters and have Call Tracking include or exclude only the call records matching these filters.

The following is a list of the functions and commands in this menu:

— Filter Definitions

— Include

— Exclude

Alarms menu

The Alarms menu contains functions used to configure the Call Tracking alarm monitor. These alarms can be sent to your PC as a visual or audible alarm, or to an external device such as a log file, printer, network workstation, pager, modem or fax machine.

The Alarm Definitions function is used to define the alarm criteria. The Alarm Setup function is used to define the alarm parameters used by the Alarm Definitions. These parameters are global and can therefore be used by any alarm definitions. This includes such information as: pager and modem alarm parameters; audible alarm time-outs; and inactivity alarm monitoring.

The Alarm Log displays a listing of all of the alarm calls that have been logged using the Log File alarm mode. This will display the last 200 call records that signaled the alarms having the Log File mode turned on. Each alarm definition accompanies the call record which it signaled. This way you can scan through the call records based on specific alarm definitions.

The following is a list of the functions and commands in this menu:

— Alarm Definition

— Alarm Setup

— Alarm Log

Display menu

The Display menu contains functions used to manipulate the graphical display windows in the Call Tracking main window. As well, it lists the names of the graphical displays allowing you to select them by name.

The following is a summary of the graphical display commands:

— Display Detail Digits

— Auto Save Positions

— Arrange Icons

— All Icons

— Tile

— Refresh

Graphical Displays

The individual graphical displays are the main graphical components of Call Tracking. Each graphical display highlights call records in a different statistical format. These windows will continuously display your call record information. To edit the parameters and features of each graphical display, use their control-menu commands.

The following sections provide a brief description of these graphical displays.

System Times

The System Times graphical display lists the current time (as recorded by the PC's internal clock). It also displays the date and time when you started collecting the call record information.

Note: The time in this dialog is the PC time; not the Meridian 1 time.

Recent Call History

The Recent Call History dialog lists the details of the last 20 call records. Refer to this dialog to review the most recent call records. Each call record consists of the originating and terminating ID's (extensions or trunks), the date and time, duration, the digits dialed and any authorization codes.

Current Call Information

The Current Call Information graphical display lists the information of the most recent call. It includes such items as the start date and time, the originating and terminating ID, the call duration and the digits dialed. If you enabled the **Additional Info** command from the Employee Database Options drop-down menu, then this window will also include the information of the employee sending or receiving this call.

User Defined Speedometer

The User Defined Speedometer is a speedometer-like analogue gauge (call meter) which displays user definable calling activity as a percentage value. This call meter represents the percentage of calls which meet the criteria specified for a sample size. It also contains an alarm function which will activate a predefined alarm when an alarm threshold is exceeded.

Percent Calls by Duration Graph

The Percent Calls by Duration Graph displays a percentage of the total calls separated into distinct time periods. Each item in the graph represents the percentage of total calls which have a duration within each time period and lists the total for each period as a percentage of the total calls. Use this graph to spot trends in call duration and gain an overview of your telephone system's usage. Select the intervals for this graph by selecting the total range from its control-menu.

Call Origin Graph

The Call Origin Graph displays the total percentage of incoming, outgoing, tandem and internal calls. The horizontal axis contains each type of call and the vertical axis lists their percentage values based on total calls.

Call Origin Pie Chart

The Call Origin Pie Chart displays the percentage of incoming, outgoing, tandem and internal call records. This represents a different way of displaying a specific call type as shown in the Call Origin Graph.

Ring Time Meter

The Ring Time Meter window contains two graphs which display ring time information (time taken for an extension to ring before it is answered or disconnected). If your release of Meridian 1 supports ring time output, then this dialog will display this information.

Sample Setup for Real Time Monitoring

The following sample setup provides information on setting up Call Tracking to connect to the Meridian 1 and collect CDR data in real time mode.

Sample scenario

A user requires a connection between Call Tracking and the Meridian 1. CDR data is output through the CDR port and is routed via a y-cable to a CDR buffer unit and to a modem (connected to Call Tracking). This y-cable allows the CDR data to be output in two identical data streams: one for storage in the buffer unit (optional); and the other for real time monitoring by Call Tracking.

The following details apply.

— The company's Meridian 1 is located in the switch room of the Head Office and is configured to output CDR information from its CDR port.

— A y-cable is connected to the CDR port with one connection to a CDR buffer unit (optional) and the second to a modem.

— The modem at the Meridian 1 is configured to communicate with another modem at the Head Office in the PC room. This second modem is attached to the PC (on COM1) on which Call Tracking is installed.

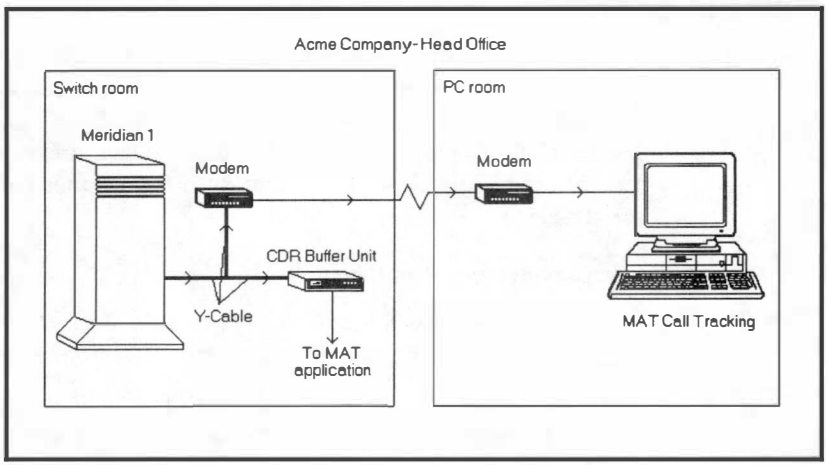
— Call Tracking requires a script file (**SL1.SCR**) to collect the CDR records from the Meridian 1 through these modems in real time. This script is provided with the MAT kit.

Since this scenario outlines the steps required to set up Call Tracking, it assumes that you have already entered the following information.

— Call Tracking was installed as part of the Meridian Administration Tools installation on a PC in the Head Office.

— A site and system have been created and configured for this connection to the Meridian 1. The site is entitled: **Acme Company** and the system is entitled: **Head Office**. Its communications parameters for the CDR port have already been entered in the Communications tab of the MAT System Configuration function.

Figure 2
Schematic for sample scenario



Steps to connecting Call Tracking to Meridian 1

The following is a summary of the tasks required to start Call Tracking and connect to the Meridian 1 in real time mode:

— Run MAT and open a site and system

— Run Call Tracking

— Verify communications parameters and select script file

— Ensure hardware connections

— Collect CDR data from Meridian 1 in real time mode

Note: The instructions in this example assume that you have already installed the MAT software and completed the MAT configuration tasks described in the *MAT Common Services User Guide*. It also assumes that you have created a site and system on which you can assign Call Tracking.

Step 1: Run MAT & open site/system

Before you run Call Tracking, you must first run the MAT Navigator and open this site and system. You can then select Call Tracking from the Telemanagement menu in this system's window.

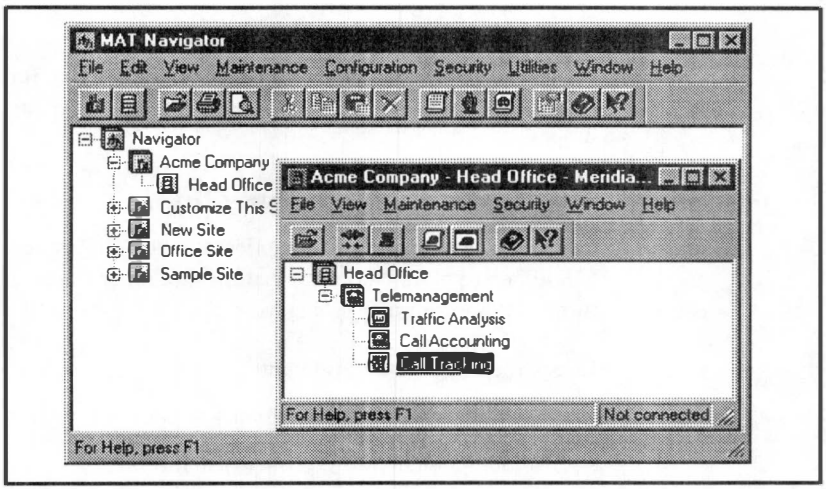
Perform the following steps to open the site and system.

1 Run the MAT Navigator by clicking the **MAT Navigator** icon. At the Login dialog which appears, enter your user ID and password and click **OK** to continue.

2 To open the site and system for this example (e.g., site name is Acme Company and system name is Head Office), click **Acme Company** in the MAT Navigator window and double-click **Head Office** from this site.

This will access the system window for Head Office.

Figure 3
MAT Navigator



Step 2: Run Call Tracking

Perform the following steps to run Call Tracking.

1 From the system window, click the **Telemanagement** menu item. This will display the MAT applications which have been assigned to the system Head Office under **Telemanagement** (e.g., Call Accounting, Call Tracking and Traffic Analysis).

2 To run Call Tracking, double-click **Call Tracking** from this menu. The Call Tracking main window will appear. You can then use its commands to connect to the Meridian 1 and start the call monitoring session.

Step 3: Verify communications parameters & select script file

To verify the communications parameters for Call Tracking in this system, click **Edit Database** from the Real Time drop-down menu. The Communications Database dialog will appear displaying the communications and connection criteria for this system's Meridian 1. These are displayed for informational purposes.

Review the data in these fields to ensure that they correspond to your system's connection parameters. If any of these values are incorrect, then return to the System Configuration function in the MAT Navigator, access the Communications tab and edit them. When you access the Call Tracking Communications Database again, its values will be changed accordingly.

The next step is to select the script file which will be used for this communications session. Select **SL1.SCR** from the **Script Setup Name** drop-down list box. Click **OK** to save this selection and exit to the main window.

Step 4: Ensure hardware connections

Since this system requires a modem connection between the PC and the Meridian 1, you must ensure that the equipment used in this connection is turned on and running properly.

Check the following equipment:

— Y-Cable attached to Meridian 1 (switch room)

— Modem attached to y-cable (switch room)

— Modem attached to PC (PC room)

Refer to the documentation provided with this equipment to ensure that they are properly connected and configured.

Step 5: Collect CDR data from Meridian 1 in real time mode

To start collecting and monitoring the call records using the defined communications criteria, click **Connect** from the Real Time drop-down menu. There will be a brief delay as the communications process is initiated. Call Tracking will then monitor calls as they are recorded by the Meridian 1.

If you wish to pause the monitoring process at any time, click **Pause** from the File drop-down menu. Click **Pause** again to resume the monitoring session. To stop the real time monitoring of the calls, click **Disconnect** from the Real Time drop-down menu. Click **Connect** again to resume the session.

This completes the steps required to establish a real time connection for Call Tracking. Use the Call Tracking Filter Definition and Graphical Display commands to control the display of the call records as they are collected from the Meridian 1. As well, you can use the Alarm Setup function to define any required alarms for this session.

Meridian Administration Tools

Call Tracking

User Guide

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Meridian Administration Tools

ESN Analysis and Reporting Tool

User guide

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ESN Analysis and Reporting Tool

Electronic Switched Network (ESN) is the Meridian 1's powerful private network application. The ESN Analysis and Reporting Tool (ESN ART) is a MAT application designed to assist you to configure, analyze, and manage the large and complex ESN database.

ESN ART allows you to retrieve the ESN configuration from a Meridian 1, and convert the overlay-based data into a PC database. Using the Windows 95 user interface, you can easily view, modify, and print the data.

ESN ART allows you to manage the ESN data quickly and easily in the following ways:

- **ESN data retrieval** – You can retrieve ESN data blocks from the Meridian 1 overlays, and ESN ART converts and stores the data in a PC database. You can then view and print the data.
- **ESN data installation** – You can clone the PC-based ESN data from an existing switch to install a new ESN configuration on a similar switch. You can add, change, or delete the retrieved ESN data using the ESN Object Managers (windows that simplify ESN data definition). You can then transfer the modified ESN data from MAT on the PC to the Meridian 1.

  Note: Release 1 of ESN ART does not yet allow you to transmit ESN data to replace existing ESN data on a Meridian 1. Release 1 does allow you to transmit ESN data to a Meridian 1 with no existing ESN data.

- **ESN data reporting** – You can create reports ranging from basic data to data analysis and customized user reports. You can send these reports to the screen, to a printer, or to a file.
- **Export ESN data** – You can export Report data to a file. Various file formats are supported.

Using on-line Help

All ESN ART dialog boxes, object managers, and property sheets are designed to be documented fully in the on-line help. If you have any questions while using any feature in ESN ART, click the **Help** button. You can also request **What's This?** help for any menu selection, field, or button.

Launching ESN ART

From the System window, double-click the ESN icon to launch the ESN ART application. The ESN ART window uses the standard MAT tree control and displays a folder for each Meridian 1 customer (as defined in the MAT System Window properties or retrieved from the Meridian 1). See Figure 1.

Figure 1
ESN ART window

Each customer folder expands to show a list of ESN object manager icons. Each icon represents a specific type of ESN data or object, such as Digit Manipulation Indexes (DMI). To display or hide the ESN application list, double-click the customer folder icon or single-click the plus sign [+] or minus sign [-].

Using ESN ART

In order to edit the ESN data for a customer, double-click on that customer's folder. If ESN data has been defined for that customer, a list of ESN object manager icons appears in the tree under the customer. An object manager is a window that contains a list of instances of the particular ESN object (for example, a list of DMI numbers and their attributes). Double-click on a particular ESN object manager icon to view and manage the associated ESN data.

If a customer does not have any ESN data defined, then the customer folder expands to show the ESN Setup Wizard. This wizard helps you to create the ESN data for the customer. See "ESN Setup Wizard" on page 18.

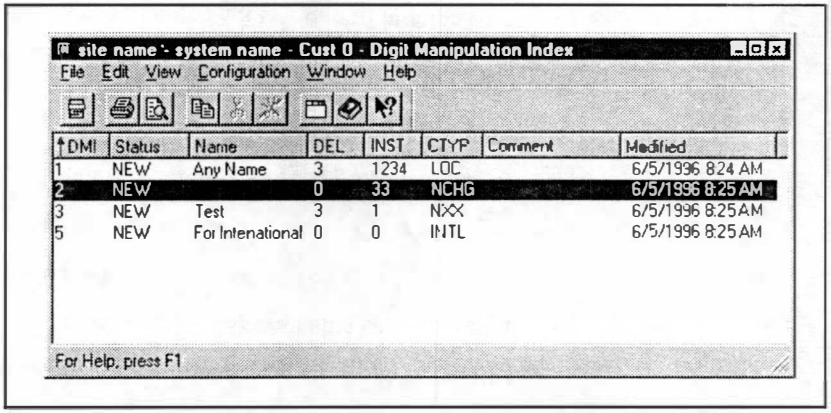
Working with ESN Object Managers

The ESN data is made up of many types of objects, such as Route List Indexes (RLI), Digit Manipulation Indexes (DMI), and Location Codes. In a typical ESN installation, most types of objects have many instances (for example, there are several instances of DMI number for the DMI object).

In ESN ART, you can view the instances of each object type as a line in a list. The window that you use to view these instances is called an *Object Manager*.

ESN ART uses object managers to assist you in viewing and managing all ESN objects. For example, double-click the **DMI** icon to open the DMI object manager. The DMI object manager provides a list of each DMI number defined for the customer and the values of the various DMI attributes. See Figure 2.

Figure 2
ESN object manager window (DMI in this example)



Each object manager is a separate window (using the standard MAT list control) containing the list of instances of the ESN object. The number and content of the columns varies for each object manager. Typically, there is one column for each property of the object. Most properties correspond to an overlay prompt.

In our example, the DMI list manger shows you the list of all DMI numbers and their attributes. To edit the attributes of a particular DMI number, double click on that line in the list. The *Property Sheet* (Figure 3) for that DMI number appears. This is the dialog box that you use to change the values of the DMI feature prompts.

Using Object Manager Features

You can perform the following actions in an object manager:

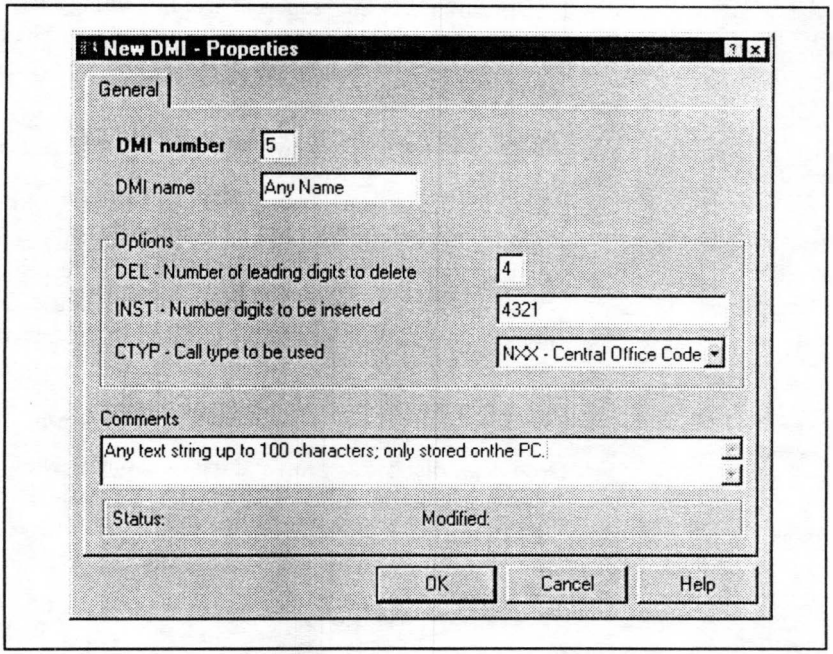
- Double click on an object to view and modify the object's properties.
- Add, change, delete, and undelete the selected objects using the pull down or pop up menus.
- Click on a column title to sort the column. Click again to reverse the order of the sort; an arrow icon in the column title indicates ascending (up arrow) or descending (down arrow) sort.
- Resize the window and columns.
- Use a horizontal scroll bar to see all the columns (if required).
- Select all or some rows and perform the following operations:
  - Copy the text of each selected row to the clipboard
  - Delete the selected objects
- Print all objects using the basic report for the object manager

Each object manager in ESN ART works as described here. Some object manager windows have more than one list displayed in the window, and some property sheets have more that one tab, but the principal is always the same.

Working with Property Sheets

Each instance of an ESN object in the object manager's list has an associated property sheet. The property sheet is a dialog box that allows you to modify the ESN data for the object. See Figure 3.

Figure 3
ESN Property sheet (DMI in this example)



The property sheet contains all attributes of an object. Each attribute typically corresponds to a prompt in an ESN overlay. (If the associated X11 Package is not equipped, its controls are disabled in the property sheet.)

> *Note:* The **Name** and **Comments** fields are exceptions to this convention. Any information that you enter into these fields is optional, for your reference only, and is saved only in the PC database. This data cannot be transmitted to the Meridian 1.

Some ESN property sheets have more than one tab. Click on a tab to edit the ESN data in that tab.

Property Sheet Controls

The attributes of an object are represented as Windows 95 controls, such as edit boxes and drop-down list boxes. For example, **Yes/No** type prompts are represented as check boxes. The names of prompts appear next to the controls. Property sheets share the following controls:

- The appearance of the property sheet for adding a new object is different from the appearance when changing an object. The title bar is different and the object ID (for example, DMI number) is disabled when you are changing an object.

  Note: You must delete an object and re-add it to change the object ID.

- Edit boxes are used for Object IDs and names; multi-line edit boxes are used for the **Comments** field and some repeating data such as lists of allowed dialed digits. Mandatory edit boxes have **bold** label text. Optional edit boxes typically have a default value. Edit boxes have a tool tip pop-up which describes the allowed values (example: "Enter a value between 1 and 32")

- Check boxes represent **Yes/No** type prompts, where checked means **Yes.**

- Drop down list boxes present a list of choices. These correspond to prompts with multiple responses. You can type the first letter to make a selection. The text in drop down list boxes include the actual prompt response followed by a short description. For example:

  - NPA - Area Code
  - NXX - Central Office Code

- Each control has an associated help description. Click on a control and press **<F1>** for help on the selected control.

– Most ESN objects also have a **Last Modified** date field and a Synchronization **Status** field. These fields are displayed as read-only text in the property sheet. The **Status** field can have the following values in MAT 5 Release 1:

  - NEW – added on the PC but not the M1. Deleting a new object removes it from the list because this change does not need to be synchronized to the Meridian 1. Changing a **NEW** object only changes the **Modified** timestamp (that is, it is still **NEW** until synchronized with the Meridian 1). See "Synchronizing the MAT database and the Meridian 1" on page 11.
  - TRN – The object has been synchronized with the Meridian 1. Objects with TRN status cannot be changed or deleted in MAT 5 release 1.

  Note: The initial state of all objects after being cloned from another customer is **New**.

Example

In our DMI example, you might wish to change the Call type (CTYP prompt). The following example explains editing the CTYP prompt for a particular DMI:

1 In the DMI list, double-click the DMI instance that you wish to change (this opens the property sheet for that DMI).

2 Move to the **CTYP** list box, and select a new value from the list of appropriate values.

3 Click **OK**—the data is stored in the MAT database ready for transmission to the Meridian 1. (You can click **Cancel** to close the property sheet without changing the ESN data.)

4 Later, when you synchronize the data between MAT and the Meridian 1, this change is made in the Meridian 1 ESN data. See "Synchronizing the MAT database and the Meridian 1" on page 11.

Note: This document does not cover the details of each object type because each object manager and property sheet is designed to be fully documented in the on-line help. You can also request **What's This?** help for any field or button while using ESN ART.

Shortcuts

To open a property sheet for an object, you can double-click on the object in the list in the object manager window. Alternately, right-click the object to open the pop-up menu, and select **Properties** to open the property sheet for that object.

The right mouse button opens a popup menu that allows you to add, delete, and undelete objects, open the object's property sheet, and get help on the object.

Defining ESN Properties

Some ESN data is defined once per customer. The **ESN Properties** property sheet allows you to configure this data in a property sheet (no object manager is needed, since there is only one instance of these values for the customer.) To open the **ESN Properties** property sheet, select **ESN Properties** from the tree.

The following tabs make up the **ESN Properties** property sheet:

- **General Tab** –The General tab contains data from ESN Features sections in Overlay 86.
- **Limits Tab** – The Limits tab contains data from ESN options in Overlay 86.
- **TOD Schedules Tab** – The TOD Schedules tab contains Time of Day Schedules and Extended TOD schedules from Overlay 86.
- **Network Control Tab** –The Network Control tab contains data from ESN Network Control section in Overlay 87.
- **NCOS Map Tab** – The NCOS Map tab contains data from Network Class of Service mapping from Overlay 87.

Synchronizing the MAT database and the Meridian 1

When you have finished defining the ESN data for a customer, you are ready to transmit the data to the Meridian 1. Alternately, you may be ready to retrieve data from a Meridian 1 to bring your MAT PC up-to-date. This is called *synchronizing* the data–guaranteeing that the ESN data in MAT and on the Meridian 1 are "in synch."

Use the **Synchronize** menu to select **Transmit To M1** or **Retrieve From M1**. You have the option of scheduled or immediate transmission or retrieval. You also have the option to *parse* data (convert Meridian 1-formatted data into MAT-formatted data).

> *Note:* In order to synchronize data, the TTY port on the Meridian 1 must be configured with a user type of **SCH**.

Preparing the ESN ART Environment for Synchronization

Follow these guidelines to assure seamless synchronization:

- The customer data, X11 release, and X11 package information stored in the MAT System Property Sheet must be correct. You can define this data manually (See "Defining ESN Properties" on page 10.) or by using the **Update System Data** item in the System window.

  Note: **Update System Data** retrieves the list of customers from the Meridian 1. This does not include the UserID and password for the customer. Before receiving or transmitting data, ensure that the correct UserID and password are defined in the MAT System Properties.

- When copying an ESN database, if the X11 release and packages are different between MAT and the Meridian 1, the ESN data may be impacted as follows:
  - Data is lost if the package is not enabled on the destination
  - Default data is used if the package is not enabled on the source
- ESN ART does not retrieve LD16 route data. Transmission errors will occur if you enter invalid route numbers.
- NORTEL recommends that you validate ESN data before you transmit it to the Meridian 1.

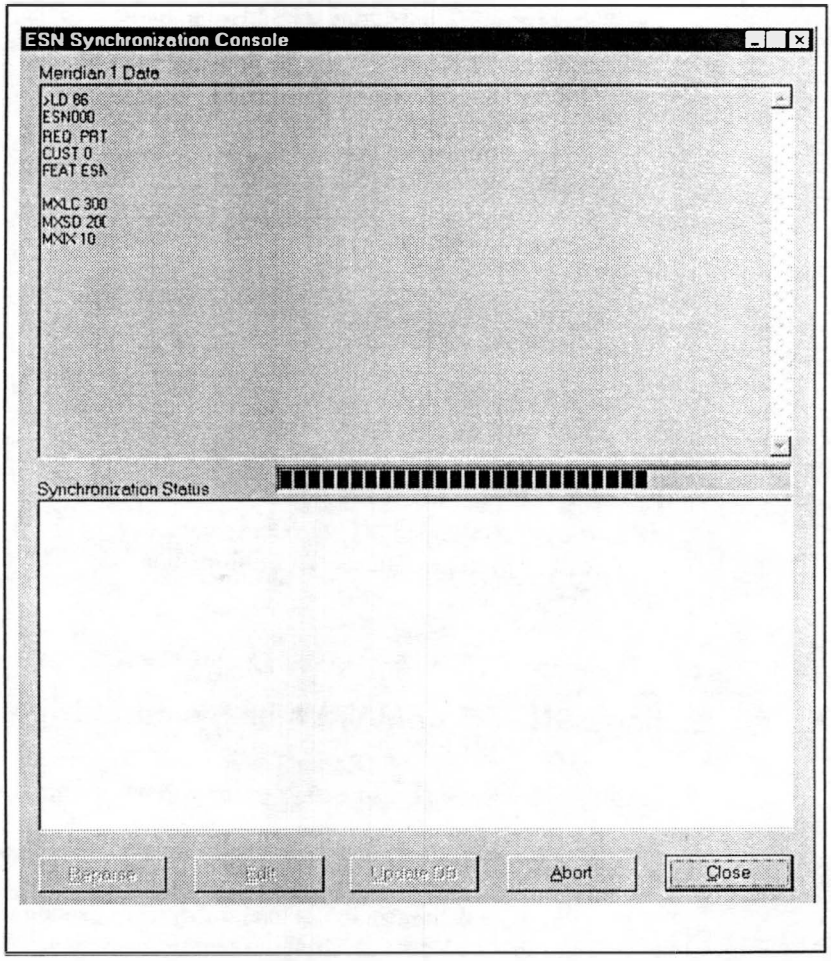
Validating ESN Data

Whenever you transmit ESN data to the Meridian 1, be sure to *validate* the data to ensure that it is formatted properly. From the **Configuration** menu, select **Validate ESN Data**. The results of the validation process appear in a log file in a Windows Word Pad.

Console Window

Once synchronization starts, the ESN synchronization console window displays the interactions between the MAT PC and the Meridian 1 overlays (86, 87, and 90).

Figure 4
Synchronization console window



The top part of the console window–the Meridian 1 Data section–allows you to view the interactions between the PC and the Meridian 1. For example, when retrieving ESN data from the Meridian 1, the printout from the ESN overlays appears in this window.

Synchronization Log Files

The bottom part of the console window, the Synchronization Status section, list the errors found during transmission, retrieval, or parse operations. When retrieving the data from the switch, the interactions include many print sequences. This process has the potential to pick up transmission errors or TIMxxx (time messages) generated by the Meridian 1. All transmission or retrieval information is saved on the MAT PC in the following synchronization files (XX represents the customer number):

```
Nortel\Common Data\[sitename]\[systemname]\
ESN\ESNRetrieveXX.dld
```

```
Nortel\Common Data\[sitename]\[systemname]\
ESN\ESNTransmitXX.log
```

If you encounter retrieval or transmission problems, you can view the retrieve or transmit log file to find the basis for the errors.

Login Log File

The login information in the Console window can help you determine the reasons for login failures. This information is saved in the following login file:

```
Nortel\Common Data\[sitename]\[systemname]\ESN\SyncLogin.log
```

Exiting ESN ART or MAT While Synchronizing

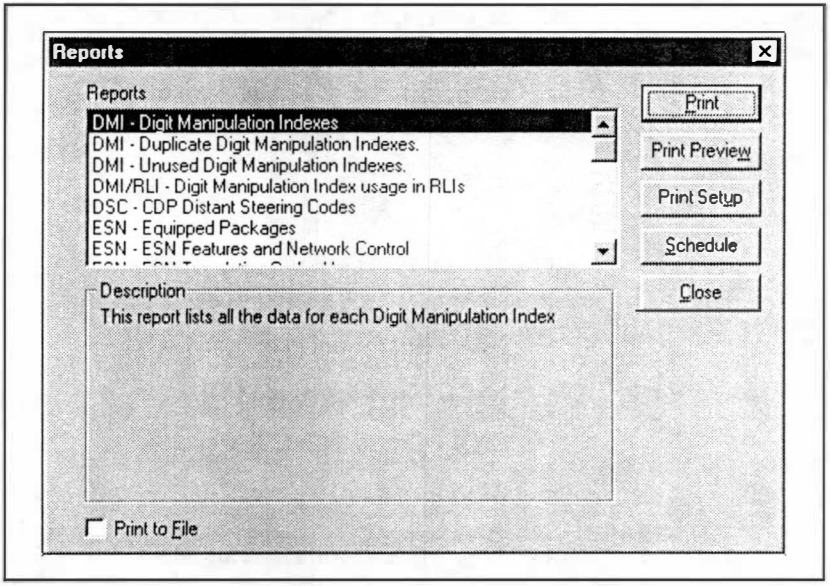
If you exit the ESN ART application while synchronizing data, the synchronization console stays open to allow synchronization to finish.

If you exit MAT while synchronizing data, a confirmation window lets you know that synchronization is still in progress. You are given the option to abort the synchronization or to allow synchronization to finish. To protect data integrity NORTEL strongly recommends that you allow synchronization to finish normally.

Printing ESN Reports

ESN ART includes many pre-defined reports to help you in your work. In the **File** menu, select **Reports**. The Reports window allows you to select one or more reports, to select a report type, configure print settings, and schedule the report(s) for a particular time. You can print more than one Basic report at a time.

Figure 5
Reports window



The following pre-defined reports are available:

- Basic Reports
  - DMI - Digit Manipulation Indexes
  - DSC - CDP Distant Steering Codes
  - ESN - ESN Properties
  - ESN - Equipped Packages
  - FCAS - Free Calling Area Screening Indexes
  - FSNI - Free Special Number Screening Indexes
  - HNPA/HLOC- Translation Tables Summary
  - ITEI - Incoming Trunk Exclusion Indexes
  - LOC - Location Codes
  - LSC - CDP Local Steering Codes
  - NCOS - Network Class of Service
  - NPA - Numbering plan Area Codes
  - NSCL - Network Speed Call
  - NXX - Central Office Translations
  - RLI - Route List Indexes
  - SPN - Special Number Translations
  - TSC - Trunk Steering Codes

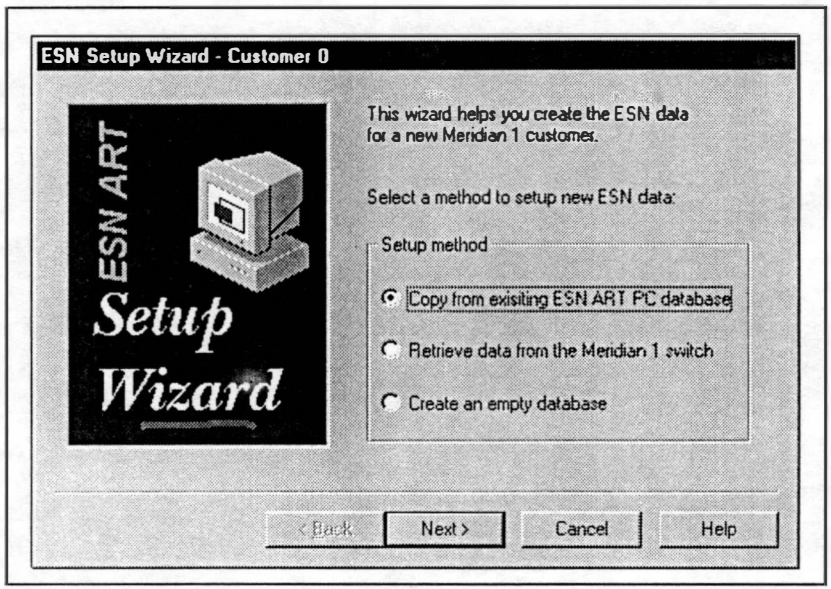
- Analysis Reports
  - DMI - Duplicate Digit Manipulation Indexes
  - DMI - Unused Digit Manipulation Indexes
  - DMI/RLI - Digit Manipulation Index usage in RLIs
  - ESN - Translation Codes Usage
  - NPA - Area Codes not covered in translation tables
  - NPA - Area Codes with no associated SDRR codes
  - NPA - Invalid Area Codes in FCAS and Translation Tables
  - RLI - Route List Index usage in NPAs, NXXs, SPNs
  - RLI - Route List Index TOD Schedules

ESN Setup Wizard

The ESN Setup Wizard helps you to set up the ESN database for a Meridian 1 customer. In the Wizard's first page, you select one of the following methods for creating a database:

- Copy from an existing PC database
- Retrieve data from the Meridian 1
- Create an empty database

Figure 6
ESN Setup Wizard



Click **Next** to move to the second page. The second page depends on your choice in the first page, as follows:

- **Copy from an existing PC database** – This option displays a tree with all sites, system, and customers with a PC-based ESN database. Select the customer with the data you what to copy and click **Finish**. This creates the ESN database for the customer. All ESN objects are given a status of **New**. You can then modify the data, such as changing the Home Area Code, and then transmit the data to the Meridian 1 using the Transmit Now or Scheduled option in the File Menu.

  Note: When copying an ESN database, if the X11 release and packages are different between MAT and the Meridian 1, the ESN data may be impacted as follows:

  - Data is lost if the package is not enabled on the destination
  - Default data is used if the package is not enabled on the source

- **Retrieve data from the Meridian 1** – This option retrieves the ESN data from the Meridian 1. This is the same as using the **Retrieve Now** or **Schedule** option in the **File** menu.

  Note: In ESN ART release 1, when you retrieve the data from the Meridian 1, you cannot add, change, or delete the data.

- **Create empty database** – This option creates an empty database. Before the database is created, you must fill in the mandatory fields (such as the Home Area Code) in the ESN Properties.

The ESN Setup Wizard is designed to be documented fully in the on-line help. If you have any questions while using the Wizard, click the **Help** button. You can also request **What's This?** help for any field or button.

ESN ART software dependencies

Table 1 shows all object managers in the ESN window tree. Some items appear only if the associated X11 packaged is equipped on the Meridian 1. The system must have the multi-customer package for the customer folders to appear.

Table 1
X11 Packages Required for the ESN ART Object Managers

ESN Object Manager	X11 Package
Customer x - Customer Name	cust
ESN Features and Network Control	bars/nars
CDP - Coordinated Dialing Plan	cdp
— LSC - Local Steering Codes	cdp
— DSC - Distant Steering Codes	cdp
— TSC - Trunk Steering Codes	cdp
DMI - Digit Manipulation Index	bars/nars
FCAS - Free Calling Area Screening Index	bars/nars
FNSI - Free Special Number Screening Index	fnp

Table 1 (Continued)
X11 Packages Required for the ESN ART Object Managers

ESN Object Manager	X11 Package
ITEI - Incoming Trunk Group Exclusion Index	bars/nars
NCOS - Network Class of Service	ncos
RLI - Route List Index	bars/nars
Translation Tables	bars/nars
— HNPA/HLOC - Home NPA and Location Codes	bars/nars
— LOC - Location Codes	bars/nars
— NPA - Area Codes	bars/nars
— NXX - Central Office Codes	bars/nars
— SPN - Special Numbers	bars/nars
— NSCL - Network Speed Call	nscl

Meridian Administration Tools

ESN Analysis and Reporting Tool

User guide

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Meridian Administration Tools

Traffic Analysis

User Guide

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Introduction

This user guide provides basic information on setting up and running Traffic Analysis. In order to ensure optimum operation of this application, read the material in this user guide before attempting to run Traffic Analysis.

Overview

Traffic Analysis performs the following functions:

— Collects traffic data from a specific system's Meridian 1

— Collects CDR data to be used by MAT Call Accounting

— Maintains a database of collected traffic data

— Defines report and graph parameters

— Generates reports to extract significant information from raw traffic data, such as trunk usage, peak periods, process loads and junctor and loop traffic

About this user guide

This user guide is intended as an introduction to the Traffic Analysis application as well as an overview of its major functions. It discusses how you can best use it to manage traffic data and generate meaningful reports.

This user guide does not discuss each Traffic Analysis function and command in detail. It only discusses the major functions and how they are accessed. For detailed information on each Traffic Analysis function and command, use on-line Help. You can use Help to obtain information for topics either directly or via its index and word-search functions. You can obtain context-sensitive help on any topic by simply pressing <F1> during the Traffic Analysis session or by clicking **Help** in the dialog or window in which it appears.

Conventions used in this user guide

This user guide uses the following terms.

— *Computer system* refers to the hardware and software of an IBM-PC™ or 100% compatible PC.

— *Windows* refers to Microsoft Windows 95™.

— *Mouse* refers to any standard PC pointing device. Common mouse actions include *point*, *click*, *right-click* and *double-click*.

— Standard Windows terminology includes: *icon*, *window*, *dialog box* (or *dialog*) and *menu*.

— Angle brackets denote a single keyboard key. For example, <Esc> denotes the Escape key, labeled Esc on PC keyboards. Angle brackets with multiple keys denote keyboard keys to use simultaneously. For example, <Ctrl-Alt-Del> denotes the key sequence for rebooting a PC.

— **This font** is used to designate buttons, menu choices and information you are to enter.

Traffic Analysis system sizing guidelines

System sizing for Traffic Analysis must consider several factors to ensure adequate capacity and throughput to retrieve, store and report on traffic data. The major factors are as follows.

1 Does the system have enough free disk space to store and maintain the traffic data?

2 Is there sufficient communications bandwidth to perform traffic data collection from all systems in time?

3 Does the system have sufficient resources to provide reports on time?

Traffic Database capacity

The size of the Traffic Database varies depending on the Meridian 1. The Traffic Database will also grow rapidly depending on how much data is kept for reporting purposes. Since the active database should normally be archived monthly (thus retaining the previous month's traffic data for reporting as well as updating statistics on the current month), you should expect to store about two months of data in the Traffic Database. Older data should be routinely archived and moved to external storage. Since, however, it will normally be stored transiently on disk as well, you should reserve capacity for the archive operation.

The actual size of the database depends on your specific configuration parameters such as: the number of loops, trunks, consoles, etc.

Use the following example formula to estimate the size of the Traffic Database (including a one-month archive). This example formula assumes that traffic data collection will be scheduled for each hour in the day (i.e., you are not excluding any time for maintenance on the Meridian 1) and that you have 31 days of archived data and 61 days of active data.

24 hours x (61 days + 31 days of archive) = 2208 Traffic Database samples

Thus, you should allow for 2500 samples (this will allow for temporary files used during reporting). Use the following calculation to determine the total bytes required for once (1) Traffic Database sample. Once you have calculated the total bytes for 1 sample, you must then multiply it by the total number of samples.

1 Traffic Database sample =

[(Network Loops x 29) + (Junctor Groups x 17) +

((C/S Links + A/M Links) x 240) + (D-Channels x 115) +

(Multi-Purpose ISDN Signaling Processors x 59) +

(Customers x 424) + (Route Lists x 299) +

(Individual Attendants x 39) + (Network Classes of Service x 35) +

(Incoming Trunk Groups x 35) + etc.]

Communications throughput

The amount of time that it takes a system to collect traffic and CDR data depends on the number of systems to collect, the Meridian 1 configuration, the communication line speed and the number of communication ports available on the MAT system.

Traffic data is produced hourly by the Meridian 1. This data is either collected hourly by Traffic Analysis from the Meridian 1 or daily from an optional data buffer device which is connected to the Meridian 1 and stores the hourly data. Once retrieved, the data is compressed by a 4-1 ratio for reporting. Having calculated the size of the database sample, you can calculate the time required to transfer the data. These calculations allow for dialing, connection, logon, traffic data requests, logout and disconnect.

— No buffer device—hourly:

Seconds to Collect Sample = [Setup + (Compression Ratio x Size of Traffic Sample) ÷ Modem Speed]

— With a buffer device—daily:

Seconds to Collect Sample = [Setup + (Hours per Day x Compression Ratio x Size of Traffic Sample) ÷ Modem Speed]

Note: For both cases, allow 40 seconds for setup and allow 85% throughput on modem speed for buffer protocol.

The goal is to ensure that the time required to collect data from all systems, using all available communications paths, is less than the interval between collection cycles. Note that modem speeds are typically rated by baud rate—which roughly translates to bits per second. As a rule of thumb, use 10 bits per byte in calculating modem speed. A 2400 baud modem delivers about 240 bytes per second.

Sample calculation

The following is an example for Traffic Database sizing and a communication throughput estimate:

Switch Option 61 + 2400 baud modem (no buffer device)

7 Network Loops	x 29	= 203
1 Junctor	x 17	= 17
1 Link	x 240	= 240

0 D-Channels	x 115	= 0
0 MISP's	x 59	= 0
1 Customer	x 424	= 424
9 Route Lists	x 299	= 2691
1 Ind. Attendant	x 39	= 39
0 NCOS's	x 35	= 0
2 In. Trunk Groups	x 35	= 70
		3,684 bytes total

Disk Requirements = 2,500 x 3,684
= 9,210,000 bytes (assumes two months on-line)

Hourly:

Data Collection Duration = 40 + (4 x 3,684) ÷ (240 x 0.85)
= 112 seconds = 1:52 minutes each hour

Daily:

Data Collection Duration = 40 + (24 x 4 x 3,684) ÷ (240 x 0.85)
= 1,774 seconds = 29:34 minutes each day

System resources

The resources required to produce reports are provided by the Windows environment and are affected by activities on the system. System loads use CPU, memory, disk storage and bandwidth. A typical application such as a word processor or electronic mail might generate little CPU load, but might put large demands on memory.

In any Windows environment, memory (RAM) can be extended through the use of virtual memory. Virtual memory allows the PC to use disk space as if it were RAM. Both RAM and virtual memory must be available in sufficient quantity for all concurrent system activities. A shortage of memory will either prevent an application from running or will slow the overall system.

CPU loading depends on the frequency and number of reports. While the system is designed to concurrently generate multiple reports (only for multiple systems), the system runs at maximum throughput when generating one report at a time.

The Windows Print Manager ensures that data from separate reports are not mixed-up on the printer. In order to perform this function, the Print Manager temporarily stores reports on disk (the Print Manager has a backlog limit of 99 print jobs). Therefore the CPU speed, available virtual memory and printer speed dictate the time required to produce the reports and the practical system limits to traffic data throughput.

Getting Started

This chapter contains information used for running and setting up Traffic Analysis for initial use.

Before using Traffic Analysis, you must install and configure it as part of Meridian Administration Tools. Refer to Getting Started in the *MAT Common Services User Guide* for complete details on installing Traffic Analysis and assigning it to a site and system.

System access

To access Traffic Analysis from the MAT Navigator, click the desired site and system and click **Traffic Analysis** from the Telemanagement menu. The main Traffic Analysis window will appear.

After you have assigned Traffic Analysis to a site and system, you can use it to collect traffic and CDR data, generate reports and graphs and maintain its databases.

Before you can begin collecting traffic data and report on it, you must enter the parameters for the data collection and report generation processes. The following section provides a complete example of how to accomplish these tasks, as well as instructions for scheduling and starting data collection from the Meridian 1.

Traffic Analysis example

The following example is provided to assist you in setting up Traffic Analysis.

> *Note:* The instructions in this example assume that you have successfully installed the MAT software and completed the MAT configuration tasks described in the *MAT Common Services User Guide.*

This example illustrates how to accomplish the following tasks:

— Run MAT and open a site and system

— Run Traffic Analysis

— Connect to the Meridian 1

— Set up the Meridian 1 for traffic collection

— Collect traffic and CDR data from the Meridian 1

— Print a D-Channel Report that contains data for incoming and outgoing calls

Run MAT & open site/system

Before you run Traffic Analysis, you must first run the MAT Navigator and open this site and system. You can then select Traffic Analysis from the Telemanagement menu in this system's window.

> *Note:* This system must already have been created using the System Configuration function. Refer to the *MAT Common Services User Guide* for more details on the System Configuration function.

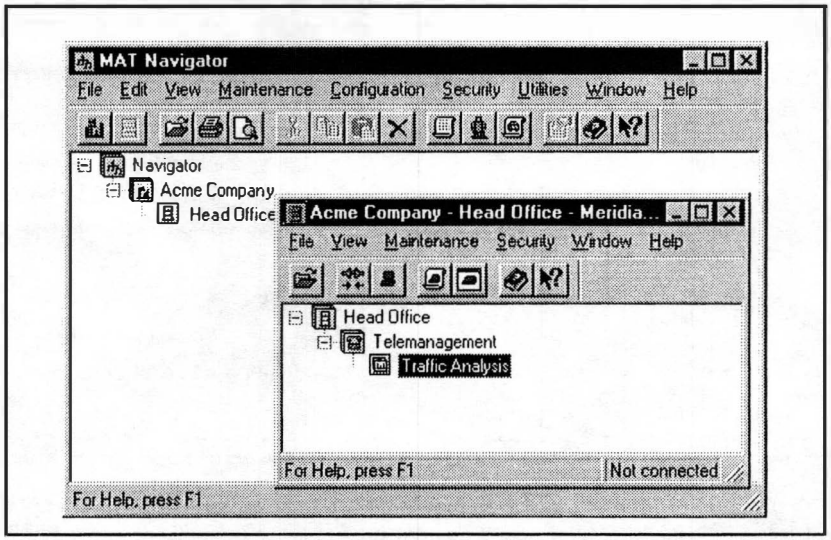
Perform the following steps to open the site and system.

1 Run the MAT Navigator by clicking the **MAT Navigator** icon. At the Login dialog which appears, enter your user ID and password and click **OK** to continue.

2 To open the site and system for this example (e.g., site name is Acme Company and system name is Head Office), click **Acme Company** in the MAT Navigator window and double-click **Head Office** from this site.

This will access the system window for Head Office.

Figure 1
MAT Navigator Site/System



Run Traffic Analysis

Perform the following steps to run Traffic Analysis.

1 From the system window, click the **Telemanagement** menu item. This will display the MAT applications which have been assigned to the system Head Office under **Telemanagement** (e.g., Call Accounting, Call Tracking and Traffic Analysis).

2 To run Traffic Analysis, double-click **Traffic Analysis** from this menu. The Traffic Analysis main window will appear.

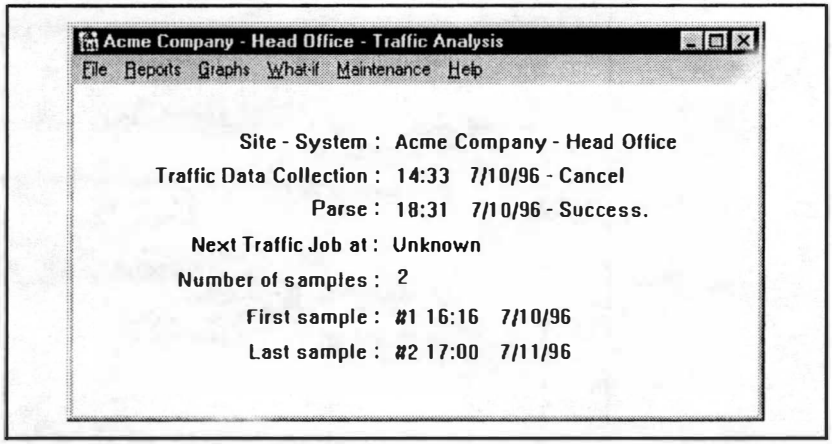
Assign Traffic Analysis to system (if not already assigned)

If Traffic Analysis has not been assigned to this system, it will not appear in the **Telemanagement** menu. To assign Traffic Analysis to this system, perform the following steps.

1 Click **Properties** from the File drop-down menu to access the System Properties dialog.

2 From the System Properties dialog, first enter a communications profile for Traffic Analysis by clicking the **Communications** tab. In the Communications Profile field, enter a profile for Traffic Analysis.

Figure 2
Traffic Analysis main window



3 Click the **Applications** tab to assign Traffic Analysis to this system. From the Communications Profile drop-down list box, select the communications profile which you just entered in the Communications tab. Click **Traffic Analysis** in the Applications list box to highlight it and turn on the **Enable** check box. Notice that the flag **Yes** will appear in the Enabled field next to Traffic Analysis in this list box.

4 Click **OK** to assign Traffic Analysis to this system. The Traffic Analysis icon will appear under **Telemanagement** for the system **Head Office.**

Set up Meridian 1 for traffic

Follow these steps to set up the Meridian 1 for traffic data collection. You only need to perform this step once when you initially set up Traffic Analysis.

1 Click **Traffic Data Collection** from the Maintenance drop-down menu of the Traffic Analysis main window.

2 Turn on the **Set up PBX for Traffic** check box. This enables the Meridian 1 to collect and transmit data.

Collect traffic & CDR data from Meridian 1

Follow these steps to collect traffic and CDR data from the Meridian 1.

1 Click **Traffic Data Collection** from the Maintenance drop-down menu.

2 Turn on the **Schedule Traffic Collection** check box.

3 From this dialog, click **OK** to start the traffic data collection. This will schedule, on an hourly basis, the load of traffic and CDR data from the Meridian 1 to a temporary data file **TRAFFIC.DMP** for parsing and report processing.

Once the system collects the initial traffic data, it will then parse it into files with the names **TFnnnn.DAT** (where **nnnn** identifies the type of report which will be generated).

The CDR data will be saved to the file **systemname.IMG** where **systemname** represents the name of this system (e.g., **Head Office.IMG**).

If you used the MAT Call Accounting application to collect data from the Meridian 1 to the **TRAFFIC.DMP** file, then you only need to schedule a data parse procedure. To parse this collected data, enable the **Schedule Traffic Parse** check box from the Traffic Data Collection dialog. When you click **OK**, Traffic Analysis will schedule the data parsing procedure (similar to the **Schedule Traffic Collection** option except without traffic data collection).

Print traffic report for incoming & outgoing calls

Follow these steps to print a report for incoming and outgoing calls.

1 Before requesting a printed report, you must select your printer as the output device. From the Traffic Analysis window, click **File** and click **Specify Output Device** from its drop-down menu. In the resulting dialog, click **Printer** and click **OK**.

2 Click **Print Setup** from the File drop-down menu to select the printer for this report. Click **OK** to save this information and return to the Traffic Analysis main window.

3 To print the report, click **System Reports** from the Reports drop-down menu. The System Reports dialog appears.

4 Click on the **Report** down arrow to open the list of available system reports. To select the D-Channel Report, click **D-Channel**.

5 Click on the **Profile** down arrow to view a list of available profiles for the D-Channel report. Select **DCHANL.PRO - D-Channel Report**. This is the default report profile used to select data for the D-Channel Report.

6 Click **Edit** next to the Profile list box to access the Profile Editor for the DCHANL.PRO report profile. A dialog will appear listing the profile's description, options and parameters. You can enter information here to tailor the report.

7 In the Options list, click to select only the following items:

Incoming
Outgoing

De-select any other highlighted items in the list.

8 To save this default profile to a new profile name, click **Save As** from the File drop-down menu. In the Save As dialog, type: **DCHANL1.PRO** for the file name.

9 Click **Close** from the File drop-down menu to exit the Profile Editor and return to the System Reports dialog.

10 Click on the Filters down arrow to view a list of available filters for the report. Click **None**. This clears the Filters box so that the report includes all collected traffic data.

11 Click **OK** to print this report. A report status box indicates printing progress.

Help

As with the other MAT applications, Traffic Analysis contains an extensive Help facility which provides you with details on all of its functions and commands. At any time during your Traffic Analysis session, you can press <F1> or click **Help** to access information on a specific topic. You can also click **Help Topics** from the Help drop-down menu of the Traffic Analysis main window and search for Help using the Windows Help search functions.

To obtain help for a topic, press <F1> or click **Help** from the currently selected dialog or window. This will access the Windows Help function and display context sensitive help information on the current topic.

Once you have accessed Help, use it to scroll through the other help topics, search for a specific topic and print help information.

User's Reference

This chapter contains a general overview of the main Traffic Analysis functions as they are accessed from its main window. It briefly describes their main function and purpose. For complete details on each of these functions and their operation, refer to the Traffic Analysis on-line Help function.

File menu

This menu contains functions used to select an output device, set up a printer and exit from Traffic Analysis.

To access these functions, click **File** from the main window and select from the following menu items:

— Select Output Device

— Print Setup

— Close

Reports & graphs

The Traffic Analysis reports and graphs provide the details for the traffic data collected from the Meridian 1. These can be printed to an output device or to the screen for review. Traffic Analysis provides a set of profiles and filters to allow you to tailor the output of these reports and graphs to suit your needs. Once you have collected the traffic data from the Meridian 1, use the commands in the Reports and Graphs menus (following sections) to generate the required reports and graphs.

Reports menu

The Reports menu contains functions and commands to print reports based on the collected traffic data.

The following are the reports available from Traffic Analysis.

— System Reports

- Network Loops
- Service Loops
- Dial Tone Delay
- Processor Load
- Selected Terminals
- Junctor Group
- Command and Status Links and Application Module Links
- D-Channel
- Multi-Purpose ISDN Signaling Processor Traffic
- Multi-Purpose ISDN Signaling Processor DCH Management
- Multi-Purpose ISDN Signaling Processor Messages
- ISDN Generic Functional Protocol

— Customer Reports

- Networks
- Trunks
- Customer Console Measurements
- Individual Console Measurements
- Feature Key Usage
- Radio Paging
- Parallel Radio Paging
- Serial Radio Paging
- Call Park
- Messaging and Auxiliary Processor Links
- Output Message Traffic
- Input Message Traffic
- Message Attendant Queue
- Telephone Set Status
- Telephone Messaging
- Network Attendant Service
- Semi-Permanent Connection Links Establishment

— Customer Network Reports

- Route Lists
- Off Hook Queuing
- Call Back Queuing
- Remote Virtual Queuing
- Network Class-of-Service
- Incoming Trunk Group

- System Threshold Reports
  - Dial Tone Speed
  - Loop Traffic
  - Junctor Traffic
  - Super Loop Traffic
- Customer Threshold Reports
  - Incoming Matching Loss
  - Outgoing Matching Loss
  - Average Speed of Answer
  - Percent Last Trunk Busy
  - Off-Hook Queue Overflow Threshold

Graphs menu

Similar to the Reports menu, the Graphs menu contains functions and commands to print graphs based on the collected traffic data.

The following are the graphs available from Traffic Analysis.

- System Graphs
  - Network Loops
  - Processor Load
- Customer Graphs
  - Trunks
  - Customer Console Measurement
  - Messaging and Auxiliary Processor Links
- Customer Network Graphs
  - Route Lists
  - Off Hook Queuing

— System Threshold Graphs

- Loop Traffic
- Super Loop Traffic

— Customer Threshold Graphs

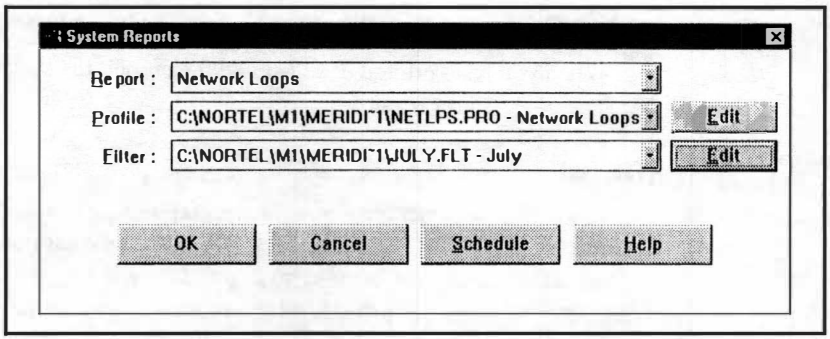
- Percent Last Trunk Busy

Generating reports & graphs

To generate a report or graph, select the report or graph type from the Reports menu or the Graphs menu. When the Report or Graph dialog appears, enter its optional profile and filter information and click **OK** to print it.

The following is a sample dialog in which you can enter reporting criteria and generate the report. The corresponding Graphs dialog has similar functionality.

Figure 3
System Reports dialog



Click on the drop-down button to display a list of the reports or graphs in that category. Each entry in the list has one or more associated profiles and filters. After you click to select a report (or graph), use the same process to select the appropriate profile and filter. Edit buttons next to the Profile and Filter boxes let you review and modify the selected profile and filter.

Profiles

Profiles define the kind of information to include in a report or graph. Each report or graph requires at least one profile. Traffic Analysis includes several default profiles for commonly-used reports and graphs. You can define a new profile by editing one of the default profiles and saving your work under a new profile name. Profile file names use the **.PRO** extension.

Filters

Filters define the range of traffic data to be included on a report or graph, such as data for a specific month. Filter file names use the **.FLT** extension.

After you have completed your work with profiles and filters, click on one of the following buttons to proceed:

OK to produce the report or graph

Schedule to specify the time at which the report or graph is to be produced

Help to obtain help for this function

Cancel to cancel the request and return to the main window

When you have printed or scheduled the output, the system will return to the Traffic Analysis window.

"What-if" menu

In addition to generating reports and graphs, you can use Traffic Analysis to ask "What if?" questions on data output from the Meridian 1. This is accomplished by defining scenarios and viewing hypothetical results. These "What if" scenarios provide different results based on new situations that you input into the system.

To define a scenario, select it from the list of available scenarios. Next, select a profile to define its contents and a filter to set a range for its data. This process is similar to producing a report or graph.

You can define the following "what if" scenarios:

— Processor Load

— Trunk

— Attendant Console

To access this function, open the What-if menu in the Traffic Analysis window.

Processor Load scenario

The Processor Load scenario provides information on rated capacity for your Meridian 1. It lists overall and itemized information on the busy hour and the number of attempts at the busy hour rate over the rated capacity. It allows you to adjust the call attempts or the CPU type and view the resulting change in busy hour CPU loading time.

> *Note:* In the filter for this scenario, enter a range with a minimum of 24 hours to make the scenario data valid.

Trunk scenario

The Trunk scenario allows you to determine the offered traffic, monthly cost and probability of blocking a trunk or a set of trunk groups. Use this scenario to change the offered traffic or the probability of trunk blocking and view the results for the trunks.

Attendant Console scenario

The Attendant Console scenario provides information on console response and service levels. Use this scenario to change response times and service levels and view the results.

Maintenance menu

Traffic Analysis provides maintenance functions which are used to: manually collect traffic and CDR data; manage the Traffic Database; edit report profiles and filters; and edit text files.

> *Note:* You cannot edit CDR data from Traffic Analysis. To do so, you must use the MAT Call Accounting application. For more information on MAT Call Accounting, refer to its on-line help and the *Call Accounting User Guide.*

Traffic Database

The Traffic Database function is used to archive a range of traffic data as well as merge, delete and reindex traffic data files.

Traffic Data Collection

The Traffic Data Collection function is used to initiate data collection from the current system's Meridian 1. Use this function to: set up the Meridian 1 for traffic and CDR collection; schedule traffic and CDR data collection; and schedule parsing of traffic data which was previous collected by MAT Call Accounting.

Profile Editor

Every report or graph requires a profile that defines the data to be included in a report or graph. MAT provides default profiles for common reports and graphs. Use the Profile Editor to view and edit the options and parameters in a profile. You can also use profiles to store and manage sets of configuration and customization information.

Filter Editor

Filters define the range of traffic data to be included in a report or graph. The Filter Editor allows you to create or edit report filters.

Text File Editor

In certain cases, you may periodically need to view or edit a text file used by Traffic Analysis. For example, you may edit the traffic data file collected from the Meridian 1 to correct any errors before the system processes the file. Use the Text File Editor command to edit any text files for Traffic Analysis.

Meridian Administration Tools

Traffic Analysis

User Guide

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